

Product name: DABCO CRYSTALLINE

Serious eye damage

Category 1

H318: Causes serious eye damage.

2.2 Label Elements

Contains:

1,4-Diazabicyclo(2.2.2.)Octane



Signal Words:

Danger

Hazard Statement(s):

H228: Flammable solid.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H318: Causes serious eye damage.

Precautionary Statements

Prevention:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240: Ground and bond container and receiving equipment.
P243: Take action to prevent static discharges.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/ physician.

2.3 Other hazards

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Endocrine disrupting properties-Toxicity

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Endocrine disrupting properties-Ecotoxicity

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

Chemical name:

Tertiary Amine

3.1 Substances

Chemical name

1,4-Diazabicyclo(2.2.2.)Octane

INDEX No.:

CAS-No.:

280-57-9

Product name: DABCO CRYSTALLINE
EC No.: 205-999-9
REACH Registration No.: 01-2119980944-22

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
1,4-Diazabicyclo(2.2.2.)Octane	50 - <100%	280-57-9	205-999-9	01-2119980944-22	No data available.	

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

This substance is listed as SVHC.

Classification

Chemical name	Classification	Notes
1,4-Diazabicyclo(2.2.2.)Octane	Classification: Flam. Sol.: 1: H228; Acute Tox.: 4: H302; Skin Irrit.: 2: H315; Eye Dam.: 1: H318; Supplemental label information: None known. Specific concentration limit: None known. Acute toxicity, oral: LD 50: 700 mg/kg Acute toxicity, inhalation: None known. Acute toxicity, dermal: LD 50: > 2.000 mg/kg	No data available.

CLP: Regulation No. 1272/2008.

SECTION 4: First aid measures
4.1 Description of necessary first-aid measures

General information:	Immediately remove contaminated clothing.
Inhalation:	fresh air supply, consult a doctor if feeling unwell.
Skin Contact:	In case of contact with skin wash off with soap and water. If skin irritation persists, call a physician.
Eye contact:	In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice
Ingestion:	Thoroughly clean the mouth with water Obtain medical attention and take along these instructions.
Personal Protection for First-aid Responders:	First Aid responders should pay attention to self-protection and use the recommended protective clothing

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Skin irritation Serious eye irritation

Hazards: No data available.

4.3 Indication of immediate medical attention and special treatment needed

Product name: DABCO CRYSTALLINE

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: foam, carbon dioxide, dry powder, water spray.

Unsuitable extinguishing media: High volume water jet.

5.2 Special hazards arising from the substance or mixture: In the event of fire the following can be released: - carbon dioxide, carbon monoxide - Ammonia (NH₃) - Nitrogen oxides (NO_x) Under certain conditions of combustion traces of other toxic substances cannot be excluded Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

5.3 Advice for firefighters

Special fire fighting procedures: Avoid dust formation. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Vapours may form explosive mixtures with air. Cool endangered containers by water spray

Special protective equipment for fire-fighters: Do not inhale explosion and/or combustion gases. Use self-contained breathing apparatus and wear protective suit

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Ensure adequate ventilation. Keep away sources of ignition. Avoid dust formation.

6.1.1 For non-emergency personnel: No data available.

6.1.2 For emergency responders: No data available.

6.2 Environmental Precautions: Do not allow to enter drains or waterways Do not discharge into the subsoil/soil.

6.3 Methods and material for containment and cleaning up: Take up mechanically. Dilute residue with water and take up with absorbent material (eg sawdust, sand, universal binder) Dispose of absorbed material in accordance with the regulations.

6.4 Reference to other sections: For further information on exposure monitoring and disposal see sections 8 and 13.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling

Product name: DABCO CRYSTALLINE
Technical measures (e.g. Local and general ventilation): No data available.

Safe handling advice: Provide good ventilation of working area (local exhaust ventilation if necessary). Avoid contact with skin and eyes. Avoid the formation and deposition of dust. Do not breathe dust.

Contact avoidance measures: No data available.

7.2 Conditions for safe storage, including any incompatibilities

Safe storage conditions: Keep container tightly closed and dry. Keep only in the original container. Protect from atmospheric moisture and water. Keep in a cool place. Do not store near acids.

Safe packaging materials: No data available.

7.3 Specific end use(s): No further recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

DNEL-Values

Remarks: DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
1,4-Diazabicyclo(2.2.2.)Octane	Workers	Inhalation	Systemic, long-term; 8,24 mg/m ³	Repeated dose toxicity
	General population	Eyes	Local effects;	Medium hazard (no threshold derived).
	Workers	Eyes	Local effects;	Medium hazard (no threshold derived).
	General population	Inhalation	Systemic, long-term; 1,46 mg/m ³	Repeated dose toxicity
	General population	Oral	Systemic, long-term; 0,5 mg/kg	Repeated dose toxicity
	General population	Dermal	Systemic, long-term; 0,5 mg/kg	Repeated dose toxicity
	Workers	Dermal	Systemic, long-term; 1,4 mg/kg	Repeated dose toxicity

PNEC-Values

Remarks: PNEC-Values

Critical component	Environmental compartment	PNEC-Values	Remarks
1,4-Diazabicyclo(2.2.2.)Octane	Soil	0,19 mg/kg	
	Sewage treatment plant	200 mg/l	
	marine water sediment	0,13 mg/kg	
	freshwater sediment	1,3 mg/kg	
	freshwater	0,1 mg/l	
	marine water	0,01 mg/l	

Product name: DABCO CRYSTALLINE

8.2 Exposure controls

Appropriate Engineering Controls: No data available.

Individual protection measures, such as personal protective equipment

Eye/face protection: goggles

Hand Protection: Material: Butyl rubber.
 Material: Nitrile rubber.
 Material: Neoprene.
 Additional Information: The protective gloves to be worn must satisfy the specifications of Regulation (EU) 2016/425 and the resulting Standard EN374., Specific workplace situations must be considered separately.

Skin and Body Protection: protective clothing

Respiratory Protection: In case of dustformation, wear a mask for for fine dust.

Hygiene measures: Wash hands before breaks and at the end of workday. Do not eat, drink or smoke when working. Remove soiled or soaked clothing immediately.

Environmental Controls: The environmental regulations on the control and monitoring of environmental exposures are to be observed.

SECTION 9: Physical and chemical properties
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9.1 Information on basic physical and chemical properties

Appearance

Physical state: solid
Form: Crystalline solid
Color: White

Odor: amine-like

Odor Threshold: not measured

Melting Point: 158 °C

Boiling Point: 174 °C (1.013 hPa)

Flammability: Flammable solid.

Upper/lower limit on flammability or explosive limits

Explosive limit - upper: not measured

Explosive limit - lower: not measured

Flash Point: 62,2 °C

Self Ignition Temperature: not measured

Decomposition Temperature: not measured

pH: Approximate 10 (100 g/l,) Water/Methanol

Viscosity

Dynamic viscosity: not measured

Kinematic viscosity: not measured

Flow Time: Not applicable

Solubility(ies)

Solubility in Water: 610 g/l (25 °C)

Solubility (other): not measured

Partition coefficient (n- -0,49 not measured

Product name: DABCO CRYSTALLINE

octanol/water):	
Vapor pressure:	0,43 hPa (23 °C)
Relative density:	not measured
Density:	1,14 g/cm ³ (20 °C)
Bulk density:	Not applicable
Vapor density (air=1):	not measured
Particle characteristics	
Particle Size:	Not applicable
Particle Size Distribution:	Not applicable
Specific surface area:	Not applicable
Surface charge/Zeta potential:	Not applicable
Assessment:	Not applicable
Shape:	Not applicable
Crystallinity:	Not applicable
Surface treatment:	Not applicable

9.2 Other information

Explosive properties:	Not explosive
Oxidizing properties:	not oxidizing
Minimum ignition temperature:	not measured
Metal Corrosion:	not measured
Evaporation Rate:	not measured

SECTION 10: Stability and reactivity

10.1 Reactivity:	see section "Possibility of hazardous reactions".
10.2 Chemical Stability:	The product is stable under normal conditions.
10.3 Possibility of hazardous reactions:	No hazardous reactions with proper storage and handling
10.4 Conditions to avoid:	Heat, flames and sparks.
10.5 Incompatible Materials:	Organic acids (i.e. acetic acid, citric acid etc.). Mineral Acid Sodium hypochlorite. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Oxidizing agents.
10.6 Hazardous Decomposition Products:	Ammonia Nitrogen Oxides Nitrogen oxide can react with water vapors to form corrosive nitric acid.

SECTION 11: Toxicological information
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Information on likely routes of exposure

Inhalation:	If handled correctly, not a relevant route of exposure. Information on effects are given below.
Skin Contact:	Relevant route of exposure. Information on effects are given below.

Product name: DABCO CRYSTALLINE

Eye contact:	Relevant route of exposure. Information on effects are given below.
Ingestion:	If handled correctly, not a relevant route of exposure. Information on effects are given below.

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**Acute toxicity (list all possible routes of exposure)****Oral****Product:** LD 50 (Rat): 700 mg/kg**Components:**
1,4-Diazabicyclo(2.2.2.)Octane
LD 50 (Rat) : 700 mg/kg**Dermal****Product:** LD 50 (Rabbit): > 2.000 mg/kg**Components:**
1,4-Diazabicyclo(2.2.2.)Octane
LD 50 (Rabbit) : > 2.000 mg/kg**Inhalation****Product:** Not classified for acute toxicity based on available data.**Components:**
1,4-Diazabicyclo(2.2.2.)Octane
Vapour, No data available.
Dusts, mists and fumes, No data available.**Repeated dose toxicity****Product:** NOAEL (Rat, pharyngeal probe, daily): 100 mg/kg
NOEL (Rat, Inhalation(Aerosols) , daily): 0,006 mg/l**Components:**
1,4-Diazabicyclo(2.2.2.)Octane
NOAEL (Rat, oral (gavage), daily): 100 mg/kg
NOEL (Rat, Inhalation(Aerosols) , daily): 0,006 mg/l**Skin Corrosion/Irritation****Product:** No data available.**Components:**
1,4-Diazabicyclo(2.2.2.)Octane
(Rabbit): Irritating.**Serious Eye Damage/Eye Irritation****Product:** No data available.**Components:**
1,4-Diazabicyclo(2.2.2.)Octane
Risk of serious damage to eyes. Rabbit:**Respiratory or Skin Sensitization****Product:** No data available.**Components:**
1,4-Diazabicyclo(2.2.2.)Octane
Sensitization test (Guinea Pig): Not a skin sensitizer.**Carcinogenicity**

Product name: DABCO CRYSTALLINE

Product: No data available.

Components:
 1,4-Diazabicyclo(2.2.2.)Octane No data available.

Germ Cell Mutagenicity

Micronucleus Cytogenic Assay: Negative., Not mutagenic in Ames Test

In vitro

Product: Ames test (OECD 471): negative; Own study;

Components:
 1,4-Diazabicyclo(2.2.2.)Octane Ames test (OECD 471): negative Own study

In vivo

Product: In vivo micronucleus test (OECD 474) pharyngeal probe (Mouse): negative;

Components:
 1,4-Diazabicyclo(2.2.2.)Octane Micronucleus test (OECD 474) pharyngeal probe (Mouse): negative

Reproductive toxicity

Product: TEDA was tested in rats for systemic and reproductive effects in a 28-day oral study at doses of 100, 300 and 1000 mg/kg/day. Reversible inflammatory changes were seen in the kidneys of the adult animals dosed at 300 and 1000 mg/kg/day. Litter size at birth, postnatal survival and growth were decreased at 1000 mg/kg/day. The oral No-Observed-Adverse-Effect-Level (NOAEL) for reproductive and neonatal toxicity is 300 mg/kg/day. The oral NOAEL for parental systemic toxicity is 100 mg/kg/day. In another study, rats were exposed via inhalation to aqueous aerosols of TEDA (6 hours/day, 5 days/week for four weeks) at nominal concentrations of 5.8, 63 and 620 mg/m³. Histopathology revealed moderate chronic laryngitis in the mid- and high-dose animals. The high-dose animals also exhibited severe irritation of the exposed skin and eyes. One high-dose rat died. The inhalation NOAEL is 5.8 mg/m³.

Components:
 1,4-Diazabicyclo(2.2.2.)Octane Oral

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Components:
 1,4-Diazabicyclo(2.2.2.)Octane No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Components:
 1,4-Diazabicyclo(2.2.2.)Octane No data available.

Aspiration Hazard

Product: Not classified

Components:

Product name: DABCO CRYSTALLINE

1,4-
Diazabicyclo(2.2.2.)Octan
e Not applicable

11.2 Information on other hazards
Endocrine disrupting properties

Product: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;

Components:
1,4-
Diazabicyclo(2.2.2.)Octan
e No data available.

Other hazards

Product: Harmful if swallowed. Causes skin irritation. Causes serious eye damage.;

SECTION 12: Ecological information

12.1 Toxicity:
Acute hazards to the aquatic environment:
Fish

Product: LC 0 (Cyprinus carpio (Carp), 96 h): > 100 mg/l
LC 50 (Leuciscus idus (Golden orfe), 96 h): 681 mg/l

Components:
1,4-
Diazabicyclo(2.2.2.)Octa
ne LC 0 (Cyprinus carpio (Carp), 96 h): > 100 mg/l
LC 50 (Leuciscus idus (Golden orfe), 96 h): 681 mg/l

Aquatic Invertebrates

Product: EC 50 (Daphnia magna, 48 h): > 100 mg/l

Components:
1,4-
Diazabicyclo(2.2.2.)Octa
ne EC 50 (Daphnia magna, 48 h): > 100 mg/l

Toxicity to Aquatic Plants

Product: EC 50 (Algae (Pseudokirchneriella subcapitata), 72 h): 110 mg/l (OECD 201)
ErC50 (Algae (Pseudokirchneriella subcapitata), 72 h): 56 mg/l (OECD 201)

Components:
1,4-
Diazabicyclo(2.2.2.)Octan
e EC 50 (Algae (Pseudokirchneriella subcapitata), 72 h): 110 mg/l (OECD 201)
ErC50 (Algae (Pseudokirchneriella subcapitata), 72 h): 56 mg/l (OECD 201)

Toxicity to microorganisms

Product: EC 50 (Pseudomonas putida, 17 h): 356 mg/l (DIN 38412 T.8)

Components:
1,4-
Diazabicyclo(2.2.2.)Octan
e EC 50 (Pseudomonas putida, 17 h): 356 mg/l (DIN 38412 T.8)

Chronic hazards to the aquatic environment:

Product name: DABCO CRYSTALLINE

Fish

Product: No data available.

Components:
1,4-Diazabicyclo(2.2.2.)Octane No data available.

Aquatic Invertebrates

Product: No data available.

Components:
1,4-Diazabicyclo(2.2.2.)Octane No data available.

Toxicity to Aquatic Plants

Product: No data available.

Components:
1,4-Diazabicyclo(2.2.2.)Octane No data available.

Toxicity to microorganisms

Product: No data available.

Components:
1,4-Diazabicyclo(2.2.2.)Octane No data available.

12.2 Persistence and Degradability

Biodegradation

Product: (28 d): 7 % Not readily degradable.

Components:
1,4-Diazabicyclo(2.2.2.)Octane (28 d): 7 % The product is not biodegradable.

BOD/COD Ratio

Product: No data available.

Components:
1,4-Diazabicyclo(2.2.2.)Octane No data available.

12.3 Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Components:
1,4-Diazabicyclo(2.2.2.)Octane No data available.

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: -0,49 20 °C
Log Kow: not measured

Components:

Product name: DABCO CRYSTALLINE

1,4-
Diazabicyclo(2.2.2.)Octane
e No data available.

12.4 Mobility in soil:

Product No data available.
Components:
 1,4-
Diazabicyclo(2.2.2.)Octane No data available.

12.5 Results of PBT and vPvB assessment:

Product This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Components:
 1,4-
Diazabicyclo(2.2.2.)Octane Non-classified vPvB substance
 Non-classified PBT substance

12.6 Endocrine disrupting properties:

Product: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Components:
 1,4-
Diazabicyclo(2.2.2.)Octane No data available.

12.7 Other adverse effects:

Other hazards
Product: Do not allow to enter soil, waterways or waste water canal.

SECTION 13: Disposal considerations
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13.1 Waste treatment methods

General information: No data available.
Disposal methods: In accordance with local authority regulations, take to special waste incineration plant
Contaminated Packaging: If empty contaminated containers are recycled or disposed of, the receiver must be informed about possible hazards.

SECTION 14: Transport information
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14.1 UN/ID No.

ADR : UN 1325
RID : UN 1325
IMDG : UN 1325

Product name: DABCO CRYSTALLINE

IATA : UN 1325**14.2 UN proper shipping name****ADR** : FLAMMABLE SOLID, ORGANIC, N.O.S.
(1,4-Diazabicyclooctane)**RID** : FLAMMABLE SOLID, ORGANIC, N.O.S.**IMDG** : FLAMMABLE SOLID, ORGANIC, N.O.S.
(1,4-Diazabicyclooctane)**IATA** : Flammable solid, organic, n.o.s.
(1,4-Diazabicyclooctane)**14.3 Transport hazard class(es)****ADR** : 4.1**RID** : 4.1**IMDG** : 4.1**IATA** : 4.1**14.4 Packing group****ADR**Packing group : II
Classification Code : F1
Hazard Identification Number : 40
Labels : 4.1
Tunnel restriction code : (E)**RID**Packing group : II
Classification Code : F1
Hazard Identification Number : 40
Labels : 4.1**IMDG**Packing group : II
Labels : 4.1
EmS Code : F-A, S-G
Remarks : IMDG Code Segregation Group 18 – Alkalis**IATA (Cargo aircraft only)**Packing instruction (cargo aircraft) : 448
Packing instruction (LQ) : Y441
Packing group : II
Labels : 4.1
Remarks : ERG-Code 3L**IATA (Passenger and cargo aircraft)**Packing instruction (passenger aircraft) : 445
Packing instruction (LQ) : Y441
Packing group : II
Labels : 4.1
Remarks : ERG-Code 3L

Product name: DABCO CRYSTALLINE

14.5 Environmental hazards

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

EU Regulations

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:
none

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I: Not applicable

15.2 Chemical safety assessment:

A substance safety assessment was carried out for this product.

SECTION 16: Other information

Abbreviations and acronyms:

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; **ADN** - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; **AGW** - Occupational exposure limit; **ASTM** - American Society for Testing and Materials; **AwSV** - Ordinance on facilities for handling substances that are hazardous to water; **BSB** - Biochemical oxygen demand; **c.c.** - closed cup; **CAS** - Chemical Abstract Services; **CESIO** - European Committee of Organic Surfactants and their Intermediates; **CSB** - Chemical oxygen demand; **DMEL** - Derived minimum effect level; **DNEL** - Derived no effect level; **EbC50** - median concentration in terms of reduction of growth; **EC** - Effective concentration; **EINECS** - European Inventory of Existing Commercial Chemical Substances; **EN** - European norm; **ErC50** - median concentration in terms of reduction of growth rate; **GGVSEB** - German ordinance for road, rail and inland waterway transportation of dangerous goods; **GGVSee** - German ordinance for sea transportation of dangerous goods; **GLP** - Good Laboratory Practice; **GMO** - Genetic Modified Organism; **IATA** - International Air Transport Association; **ICAO** - International Civil Aviation Organization; **IMDG** - International Maritime Dangerous Goods; **ISO** - International Organization For Standardization; **LD/LC** - lethal dose/concentration; **LOAEL** - Lowest observed adverse effect level; **LOEL** - Lowest observed effect level; **M-Factor** - multiplying factor; **NOAEL** - No observed adverse effect level; **NOEC** - no observed effect concentration; **NOEL** - no observed effect level; **o.c.** - open cup; **OECD** - Organisation for Economic Cooperation and Development; **OEL** - Occupational Exposure Limit; **PBT** - Persistent, bioaccumulative, toxic; **PNEC** - Predicted no effect concentration; **REACH** - REACH registration; **RID** - Convention concerning International

Product name: DABCO CRYSTALLINE

 Carriage by Rail; **SVHC** - Substances of Very High Concern; **TA** - Technical Instructions; **TRGS** - Technical Rules for Hazardous Substances; **vPvB** - very persistent, very bioaccumulative; **WGK** - Water Hazard Class

Key literature references and sources for data: No data available.

Training information: Comply with national laws regulating employee instruction.

Revision Information Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Disclaimer: This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

Annex to the extended Safety Data Sheet (eSDS)

Content

Exposure Scenario I.	Manufacture
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Exposure Scenario III.	Manufacturing of other substances, Use at industrial site
Exposure Scenario IV.	Coatings, Use at industrial site
Exposure Scenario V.	Use of rigid foams, Use at industrial site
Exposure Scenario VI.	Foundry, Use at industrial site
Exposure Scenario VII.	Use of flexible foams, Use at industrial site
Exposure Scenario VIII.	Use at industrial site
Exposure Scenario IX.	Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site
Exposure Scenario X.	Coatings, Professional uses
Exposure Scenario XI.	Professional uses
Exposure Scenario XII.	Use of rigid foams, Professional uses

Exposure Scenario I.

Exposure scenario worker

1.Manufacture

Product name: DABCO CRYSTALLINE

List of use descriptors	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	<u>Manufacture:</u> ERC1: Manufacture of the substance
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List of names of contributing worker scenarios and corresponding PROCs	<u>Manufacture:</u> PROC1: Use in closed process, no likelihood of exposure
	<u>Manufacture:</u> PROC2: Use in closed, continuous process with occasional controlled exposure
	<u>Manufacture:</u> PROC3: Use in closed batch process (synthesis or formulation)
	<u>Manufacture:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
	<u>Manufacture:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	<u>Manufacture:</u> PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	<u>Manufacture:</u> PROC15: Use as laboratory reagent
	<u>Manufacture:</u> PROC24: High (mechanical) energy work-up of substances bound in/on materials and/or articles

2.1. Contributing exposure scenario controlling environmental exposure for: Manufacture

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:	
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Product name: DABCO CRYSTALLINE

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 10 t
Daily amount per site	<= 0,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		0 %	0 %	0,001 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions., No relevant emissions, The expected exposure level is minimal.
Soil	No leakage into soil., Emission to the environment is negligible du to strictly controlled conditions.
Water	Emission to the environment is negligible du to strictly controlled conditions., No special measures., No waste water occurs.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Product name: DABCO CRYSTALLINE

Conditions and measures related to sewage treatment plant
Size of municipal sewage system/treatment plant (m³/d):

type:	not relevant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	not relevant
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
No waste from process, Dispose of solid residue according to applicable regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Manufacture
Process Categories: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the substance in a mixture: Covers percentage substance in the product up to 100 %.

Physical form of the product: Solid, low dustiness

Vapour pressure: not relevant

Process temperature: <= 40 °C

Remarks not relevant

Amounts used

Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	For further specification, refer to section 8 of the SDS.		

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Manufacture

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Manufacture
Process Categories: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Manufacture

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).	0 %	

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.	95 %	
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Manufacture

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Manufacture

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
----------------------------	--

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Manufacture
Process Categories: PROC15: Use as laboratory reagent

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	For further specification, refer to section 8 of the SDS.		

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Manufacture

Process Categories:	PROC24: High (mechanical) energy work-up of substances bound in/on materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Manufacture:

ERC1:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,000792 mg/l	< 0,01	EUSES	none
freshwater sediment	0,0099 mg/kg dry weight	< 0,01	EUSES	none

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marine water	0,000077 9 mg/l	< 0,01	EUSES	none
Marine sediments	0,000974 mg/kg dry weight	< 0,01	EUSES	none
Sewage treatment plant	0 mg/l	< 0,01	EUSES	none
agricultural soil	0,00142 mg/kg dry weight	< 0,01	EUSES	none
Humans via the environment	0,000044 2 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Health:
Manufacture:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,01 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,01 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,034 mg/kg bw/day	0,024	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00992 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00992 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,025		none

Product name: DABCO CRYSTALLINE
Manufacture:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,01 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,01 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,004 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,069 mg/kg bw/day	0,049	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00999 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00999 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,05		none

Product name: DABCO CRYSTALLINE
Manufacture:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,1 mg/m ³	0,012	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,034 mg/kg bw/day	0,025	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,01 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,01 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,037		none

Product name: DABCO CRYSTALLINE
Manufacture:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,025 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,025 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,343 mg/kg bw/day	0,245	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,248		none

Product name: DABCO CRYSTALLINE
Manufacture:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,5 mg/m ³	0,061	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,5 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,686 mg/kg bw/day	0,49	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,55		none

Product name: DABCO CRYSTALLINE
Manufacture:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,1 mg/m ³	0,012	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,686 mg/kg bw/day	0,49	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,502		none

Product name: DABCO CRYSTALLINE
Manufacture:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,1 mg/m ³	0,012	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,34 mg/kg bw/day	0,243	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,099 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,099 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,255		none

Product name: DABCO CRYSTALLINE
Manufacture:
PROC24:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	1 mg/m ³	0,121	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,238 mg/kg bw/day	0,202	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,01 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,01 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,324		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario.

Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario
II.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1.formulation, industrial

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	<u>formulation:</u> ERC2: Formulation into mixture (mixtures)
--	--

List of names of contributing worker scenarios and corresponding PROCs	<u>formulation:</u> PROC1: Use in closed process, no likelihood of exposure <u>formulation:</u> PROC2: Use in closed, continuous process with occasional controlled exposure <u>formulation:</u> PROC3: Use in closed batch process (synthesis or formulation) <u>formulation:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises <u>formulation:</u> PROC5: Mixing or blending in batch processes <u>formulation:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <u>formulation:</u> PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities <u>formulation:</u> PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) <u>formulation:</u> PROC15: Use as laboratory reagent
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2.1.Contributing exposure scenario controlling environmental exposure for: formulation, industrial

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Product name: DABCO CRYSTALLINE

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 930 t
Daily amount per site	<= 9,3 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m ³ /d):	18.000 m ³ /d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
	100	0 %	0 %	0,01 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions., No relevant emissions, The expected exposure level is minimal.
Soil	No leakage into soil., Emission to the environment is negligible du to strictly controlled conditions.
Water	Emission to the environment is negligible du to strictly controlled conditions., No special measures., No waste water occurs.
Sediment:	not relevant

Product name: DABCO CRYSTALLINE

Remarks:	not relevant
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Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC1: Use in closed process, no likelihood of exposure
----------------------------	---

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	For further specification, refer to section 8 of the SDS.		

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC3: Use in closed batch process (synthesis or formulation)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
----------------------------	---

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
----------------------------	--

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

--

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
----------------------------	--

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: formulation, industrial

Process Categories:	PROC15: Use as laboratory reagent
----------------------------	-----------------------------------

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	For further specification, refer to section 8 of the SDS.		

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

formulation, industrial:

ERC2:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,047 mg/l	0,465	EUSES	none
freshwater sediment	0,582 mg/kg dry weight	0,447	EUSES	none
marine water	0,00465 mg/l	0,465	EUSES	none

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Product name: DABCO CRYSTALLINE

Marine sediments	0,058 mg/kg dry weight	0,447	EUSES	none
Sewage treatment plant	0,46 mg/l	< 0,01	EUSES	none
agricultural soil	0,067 mg/kg dry weight	0,351	EUSES	none
Humans via the environment	0,00143 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Health:
formulation, industrial:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,01 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,01 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,034 mg/kg bw/day	0,024	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00992 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00992 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,025		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,01 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,01 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,004 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,069 mg/kg bw/day	0,049	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00999 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00999 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,05		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,1 mg/m ³	0,012	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,034 mg/kg bw/day	0,025	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,01 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,01 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,037		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,5 mg/m ³	0,061	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,5 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,343 mg/kg bw/day	0,245	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,306		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,5 mg/m ³	0,061	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,5 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,686 mg/kg bw/day	0,49	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,1 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,1 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,55		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,5 mg/m ³	0,061	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,5 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,686 mg/kg bw/day	0,49	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,55		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,1 mg/m ³	0,012	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,686 mg/kg bw/day	0,49	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,502		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,1 mg/m ³	0,012	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,343 mg/kg bw/day	0,245	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,05 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,257		none

Product name: DABCO CRYSTALLINE
formulation, industrial:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,1 mg/m ³	0,012	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,1 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,34 mg/kg bw/day	0,243	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,099 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,099 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,255		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario

III.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1. Manufacturing of other substances, Use at industrial site

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	<u>Manufacturing of other substances:</u> ERC6a: Use of intermediate
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List of names of contributing worker scenarios and corresponding PROCs	<p><u>Manufacturing of other substances:</u> PROC1: Use in closed process, no likelihood of exposure</p> <p><u>Manufacturing of other substances:</u> PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p><u>Manufacturing of other substances:</u> PROC3: Use in closed batch process (synthesis or formulation)</p> <p><u>Manufacturing of other substances:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p><u>Manufacturing of other substances:</u> PROC5: Mixing or blending in batch processes</p> <p><u>Manufacturing of other substances:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p><u>Manufacturing of other substances:</u> PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p><u>Manufacturing of other substances:</u> PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p><u>Manufacturing of other substances:</u> PROC15: Use as laboratory reagent</p>
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2.1. Contributing exposure scenario controlling environmental exposure for: Manufacturing of other substances, Use at industrial site

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Product name: DABCO CRYSTALLINE

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 90 t
Daily amount per site	<= 4,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m ³ /d):	18.000 m ³ /d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		0 %	0 %	0,01 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions., No relevant emissions, The expected exposure level is minimal.
Soil	No leakage into soil., Emission to the environment is negligible du to strictly controlled conditions.
Water	Emission to the environment is negligible du to strictly controlled conditions., No special measures., No waste water occurs.
Sediment:	not relevant

Product name: DABCO CRYSTALLINE

Remarks:	not relevant
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Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC1: Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC3: Use in closed batch process (synthesis or formulation)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Manufacturing of other substances, Use at industrial site

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Manufacturing of other substances, Use at industrial site:

ERC6a:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	0,023 mg/l	0,228	EUSES	none
freshwater sediment	0,285 mg/kg dry weight	0,219	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,00228 mg/l	0,228	EUSES	none
Marine sediments	0,028 mg/kg dry weight	0,219	EUSES	none
Sewage treatment plant	0,223 mg/l	< 0,01	EUSES	none
agricultural soil	0,033 mg/kg dry weight	0,174	EUSES	none
Humans via the environment	0,000613 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Health:
Manufacturing of other substances, Use at industrial site:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,00102 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		< 0,01		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,029	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,03		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,021 mg/kg bw/day	0,015	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,022		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,183		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,249	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,154		none

Product name: DABCO CRYSTALLINE
Manufacturing of other substances, Use at industrial site:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,01 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,015		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario
IV.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1.Coatings, Use at industrial site

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC

Coatings:
 ERC6d: Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)

List of names of contributing worker scenarios and corresponding PROCs

Coatings:
 PROC1: Use in closed process, no likelihood of exposure

Coatings:
 PROC2: Use in closed, continuous process with occasional controlled exposure

Coatings:
 PROC3: Use in closed batch process (synthesis or formulation)

Coatings:
 PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Coatings:
 PROC5: Mixing or blending in batch processes

Coatings:
 PROC7: Industrial spraying

Coatings:
 PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Coatings:
 PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Coatings:
 PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Coatings:
 PROC10: Roller application or brushing

Coatings:
 PROC15: Use as laboratory reagent

Coatings:
 PROC13: Treatment of articles by dipping and pouring

Product name: DABCO CRYSTALLINE

	Coatings: PROC21: Low energy manipulation of substances bound in materials and/or articles
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2.1. Contributing exposure scenario controlling environmental exposure for: Coatings, Use at industrial site

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 90 t
Daily amount per site	<= 4,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		35 %	0,025 %	0,005 %	

Other relevant operational conditions	not relevant
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Product name: DABCO CRYSTALLINE

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant
Size of municipal sewage system/treatment plant (m³/d):

type:	sewage treatment plant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: DABCO CRYSTALLINE

2.2. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site
Process Categories: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the substance in a mixture: Covers percentage substance in the product up to 25 %.

Physical form of the product: Solid, low dustiness

Vapour pressure: not relevant

Process temperature: <= 40 °C

Remarks not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Product name: DABCO CRYSTALLINE
Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Product name: DABCO CRYSTALLINE

Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC3: Use in closed batch process (synthesis or formulation)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site
Process Categories: PROC7: Industrial spraying

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Local exhaust ventilation 95% (LEV 95%)	95 %	

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.	95 %	
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
----------------------------	--

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.11. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC10: Roller application or brushing
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.12. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.13. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC13: Treatment of articles by dipping and pouring
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.14. Contributing exposure scenario controlling worker exposure for: Coatings, Use at industrial site

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Coatings, Use at industrial site:

ERC6d:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,012 mg/l	0,117	EUSES	none
freshwater sediment	0,146 mg/kg dry weight	0,112	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,00117 mg/l	0,117	EUSES	none
Marine sediments	0,015 mg/kg dry weight	0,112	EUSES	none
Sewage treatment plant	0,111 mg/l	< 0,01	EUSES	none
agricultural soil	0,151 mg/kg dry weight	0,796	EUSES	none
Humans via the environment	0,201 mg/kg bw/day	0,403	EUSES	none
Humans via the environment		0,419	EUSES	none

Health:
Coatings, Use at industrial site:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,00102 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		< 0,01		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,029	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,03		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,021 mg/kg bw/day	0,015	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,022		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,183		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC7:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,0009 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,0009 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,771 mg/kg bw/day	0,551	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,551		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,154		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,01 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,015		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC13:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Coatings, Use at industrial site:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,085 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,133		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario.

Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario
V.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1. Use of rigid foams, Use at industrial site

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC

Use of rigid foams:
 ERC6d: Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)

List of names of contributing worker scenarios and corresponding PROCs

Use of rigid foams:
 PROC1: Use in closed process, no likelihood of exposure

Use of rigid foams:
 PROC2: Use in closed, continuous process with occasional controlled exposure

Use of rigid foams:
 PROC3: Use in closed batch process (synthesis or formulation)

Use of rigid foams:
 PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Use of rigid foams:
 PROC5: Mixing or blending in batch processes

Use of rigid foams:
 PROC7: Industrial spraying

Use of rigid foams:
 PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Use of rigid foams:
 PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Use of rigid foams:
 PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Use of rigid foams:
 PROC10: Roller application or brushing

Use of rigid foams:
 PROC15: Use as laboratory reagent

Use of rigid foams:
 PROC21: Low energy manipulation of substances bound in

Product name: DABCO CRYSTALLINE

	materials and/or articles
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2.1. Contributing exposure scenario controlling environmental exposure for: Use of rigid foams, Use at industrial site

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:	
Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 90 t
Daily amount per site	<= 4,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	18.000 m ³ /d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		35 %	0,025 %	0,005 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Product name: DABCO CRYSTALLINE

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant
Size of municipal sewage system/treatment plant (m³/d):

type:	sewage treatment plant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site
Process Categories: PROC1: Use in closed process, no likelihood of exposure

Product name: DABCO CRYSTALLINE
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC3: Use in closed batch process (synthesis or formulation)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC7: Industrial spraying
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Local exhaust ventilation 95% (LEV 95%)	95 %	

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.	95 %	
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.11. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC10: Roller application or brushing
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.12. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.13. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Use at industrial site

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Use of rigid foams, Use at industrial site:

ERC6d:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,012 mg/l	0,117	EUSES	none
freshwater sediment	0,146 mg/kg dry weight	0,112	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,00117 mg/l	0,117	EUSES	none
Marine sediments	0,015 mg/kg dry weight	0,112	EUSES	none
Sewage treatment plant	0,111 mg/l	< 0,01	EUSES	none
agricultural soil	0,151 mg/kg dry weight	0,796	EUSES	none
Humans via the environment	0,201 mg/kg bw/day	0,403	EUSES	none
Humans via the environment		0,419	EUSES	none

Health:
Use of rigid foams, Use at industrial site:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,00102 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		< 0,01		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,029	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,03		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,021 mg/kg bw/day	0,015	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,022		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,183		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC7:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,0009 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,0009 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,771 mg/kg bw/day	0,551	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,551		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,154		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,18 mg/m ³	0,022	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,18 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,494 mg/kg bw/day	0,353	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,375		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,01 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,015		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Use at industrial site:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,085 mg/kg bw/day	0,061	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,133		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario

VI.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1. Foundry, Use at industrial site

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC

Foundry:
 ERC5: Industrial use resulting in inclusion into or onto a matrix

List of names of contributing worker scenarios and corresponding PROCs

Foundry:
 PROC1: Use in closed process, no likelihood of exposure

Foundry:
 PROC2: Use in closed, continuous process with occasional controlled exposure

Foundry:
 PROC3: Use in closed batch process (synthesis or formulation)

Foundry:
 PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Foundry:
 PROC5: Mixing or blending in batch processes

Foundry:
 PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Foundry:
 PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Foundry:
 PROC10: Roller application or brushing

Foundry:
 PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation

Foundry:
 PROC15: Use as laboratory reagent

Foundry:
 PROC21: Low energy manipulation of substances bound in materials and/or articles

Product name: DABCO CRYSTALLINE

2.1. Contributing exposure scenario controlling environmental exposure for: Foundry, Use at industrial site
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 90 t
Daily amount per site	<= 4,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m ³ /d):	18.000 m ³ /d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		0 %	0 %	0,01 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.

Product name: DABCO CRYSTALLINE

Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant
Size of municipal sewage system/treatment plant (m³/d):

type:	sewage treatment plant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC1: Use in closed process, no likelihood of exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C

Product name: DABCO CRYSTALLINE

Remarks	not relevant
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Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC3: Use in closed batch process (synthesis or formulation)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC10: Roller application or brushing
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.11. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.12. Contributing exposure scenario controlling worker exposure for: Foundry, Use at industrial site

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Foundry, Use at industrial site:

ERC5:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,023 mg/l	0,228	EUSES	none
freshwater sediment	0,285 mg/kg dry weight	0,219	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,00228 mg/l	0,228	EUSES	none
Marine sediments	0,028 mg/kg dry weight	0,219	EUSES	none
Sewage treatment plant	0,223 mg/l	< 0,01	EUSES	none
agricultural soil	0,033 mg/kg dry weight	0,174	EUSES	none
Humans via the environment	0,000613 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Health:
Foundry, Use at industrial site:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,00102 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		< 0,01		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,029	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,03		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,021 mg/kg bw/day	0,015	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,022		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,183		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,18 mg/m ³	0,022	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,18 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,494 mg/kg bw/day	0,353	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,375		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC14:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,103 mg/kg bw/day	0,073	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,081		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,01 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,015		none

Product name: DABCO CRYSTALLINE
Foundry, Use at industrial site:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,085 mg/kg bw/day	0,061	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,133		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario

VII.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1. Use of flexible foams, Use at industrial site

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	<u>Use of flexible foams:</u> ERC6d: Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
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List of names of contributing worker scenarios and corresponding PROCs	<u>Use of flexible foams:</u> PROC1: Use in closed process, no likelihood of exposure <u>Use of flexible foams:</u> PROC2: Use in closed, continuous process with occasional controlled exposure <u>Use of flexible foams:</u> PROC3: Use in closed batch process (synthesis or formulation) <u>Use of flexible foams:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises <u>Use of flexible foams:</u> PROC5: Mixing or blending in batch processes <u>Use of flexible foams:</u> PROC7: Industrial spraying <u>Use of flexible foams:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities <u>Use of flexible foams:</u> PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities <u>Use of flexible foams:</u> PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation <u>Use of flexible foams:</u> PROC15: Use as laboratory reagent <u>Use of flexible foams:</u> PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product name: DABCO CRYSTALLINE

2.1. Contributing exposure scenario controlling environmental exposure for: Use of flexible foams, Use at industrial site
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 90 t
Daily amount per site	<= 4,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		35 %	0,025 %	0,005 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Product name: DABCO CRYSTALLINE

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant
Size of municipal sewage system/treatment plant (m³/d):

type:	sewage treatment plant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site
Process Categories: PROC1: Use in closed process, no likelihood of exposure

Product name: DABCO CRYSTALLINE
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC3: Use in closed batch process (synthesis or formulation)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

--

Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC7: Industrial spraying
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.11. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.12. Contributing exposure scenario controlling worker exposure for: Use of flexible foams, Use at industrial site

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Use of flexible foams, Use at industrial site:

ERC6d:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,012 mg/l	0,117	EUSES	none
freshwater sediment	0,146 mg/kg dry weight	0,112	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,00117 mg/l	0,117	EUSES	none
Marine sediments	0,015 mg/kg dry weight	0,112	EUSES	none
Sewage treatment plant	0,111 mg/l	< 0,01	EUSES	none
agricultural soil	0,151 mg/kg dry weight	0,796	EUSES	none
Humans via the environment	0,201 mg/kg bw/day	0,403	EUSES	none
Humans via the environment		0,419	EUSES	none

Health:
Use of flexible foams, Use at industrial site:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,00102 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		< 0,01		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,029	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,03		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,021 mg/kg bw/day	0,015	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,022		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,183		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC7:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,36 mg/m ³	0,044	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,36 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,771 mg/kg bw/day	0,551	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,595		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC14:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,103 mg/kg bw/day	0,073	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,081		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,01 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,015		none

Product name: DABCO CRYSTALLINE
Use of flexible foams, Use at industrial site:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,085 mg/kg bw/day	0,061	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,133		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario

VIII.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1. Use at industrial site

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC

Adhesives, sealants:
 ERC6d: Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)

List of names of contributing worker scenarios and corresponding PROCs

Adhesives, sealants:
 PROC1: Use in closed process, no likelihood of exposure

Adhesives, sealants:
 PROC2: Use in closed, continuous process with occasional controlled exposure

Adhesives, sealants:
 PROC3: Use in closed batch process (synthesis or formulation)

Adhesives, sealants:
 PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Adhesives, sealants:
 PROC5: Mixing or blending in batch processes

Adhesives, sealants:
 PROC7: Industrial spraying

Adhesives, sealants:
 PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Adhesives, sealants:
 PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Adhesives, sealants:
 PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Adhesives, sealants:
 PROC10: Roller application or brushing

Adhesives, sealants:
 PROC13: Treatment of articles by dipping and pouring

Adhesives, sealants:
 PROC14: Production of preparations or articles by tableting,

Product name: DABCO CRYSTALLINE

	compression, extrusion, pelletisation <u>Adhesives, sealants:</u> PROC15: Use as laboratory reagent <u>Adhesives, sealants:</u> PROC21: Low energy manipulation of substances bound in materials and/or articles
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2.1. Contributing exposure scenario controlling environmental exposure for: Adhesives, sealants, Use at industrial site

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 90 t
Daily amount per site	<= 4,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	18.000 m ³ /d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		35 %	0,025 %	0,005 %	

Other relevant operational conditions	not relevant
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Product name: DABCO CRYSTALLINE

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant
Size of municipal sewage system/treatment plant (m³/d):

type:	sewage treatment plant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: DABCO CRYSTALLINE

2.2. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site
Process Categories: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the substance in a mixture: Covers percentage substance in the product up to 25 %.

Physical form of the product: Solid, low dustiness

Vapour pressure: not relevant

Process temperature: <= 40 °C

Remarks not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Product name: DABCO CRYSTALLINE
Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Product name: DABCO CRYSTALLINE

Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		:	1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC3: Use in closed batch process (synthesis or formulation)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC7: Industrial spraying
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.	95 %	
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.11. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC10: Roller application or brushing
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.12. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC13: Treatment of articles by dipping and pouring
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.13. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.14. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.15. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Use at industrial site

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Adhesives, sealants, Use at industrial site:

ERC6d:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,012 mg/l	0,117	EUSES	none
freshwater sediment	0,146 mg/kg dry weight	0,112	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,00117 mg/l	0,117	EUSES	none
Marine sediments	0,015 mg/kg dry weight	0,112	EUSES	none
Sewage treatment plant	0,111 mg/l	< 0,01	EUSES	none
agricultural soil	0,151 mg/kg dry weight	0,796	EUSES	none
Humans via the environment	0,201 mg/kg bw/day	0,403	EUSES	none
Humans via the environment		0,419	EUSES	none

Health:
Adhesives, sealants, Use at industrial site:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,00102 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		< 0,01		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,029	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,03		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,021 mg/kg bw/day	0,015	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,022		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,183		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC7:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,0009 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,0009 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,771 mg/kg bw/day	0,551	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,551		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC9:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,154		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,18 mg/m ³	0,022	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,18 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,494 mg/kg bw/day	0,353	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,375		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC13:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC14:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,103 mg/kg bw/day	0,073	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,081		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,01 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,015		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Use at industrial site:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,085 mg/kg bw/day	0,061	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,133		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario
IX.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1.Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

List of use descriptors

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 ERC5: Industrial use resulting in inclusion into or onto a matrix

List of names of contributing worker scenarios and corresponding PROCs

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC1: Use in closed process, no likelihood of exposure

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC2: Use in closed, continuous process with occasional controlled exposure

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC3: Use in closed batch process (synthesis or formulation)

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC5: Mixing or blending in batch processes

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC10: Roller application or brushing

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:
 PROC14: Production of preparations or articles by tableting,

Product name: DABCO CRYSTALLINE

	compression, extrusion, pelletisation <u>Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:</u> PROC15: Use as laboratory reagent <u>Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers:</u> PROC21: Low energy manipulation of substances bound in materials and/or articles
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2.1. Contributing exposure scenario controlling environmental exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Annual amount per site	<= 90 t
Daily amount per site	<= 4,5 t

Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	18.000 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		0 %	0 %	0,01 %	

Product name: DABCO CRYSTALLINE

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	2.000 m ³ /d
Treatment effectiveness:	1,109 %
Sludge treatment technique:	Controlled application of sewage sludge to agricultural soil
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: DABCO CRYSTALLINE

2.2. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the substance in a mixture: Covers percentage substance in the product up to 25 %.

Physical form of the product: Solid, low dustiness

Vapour pressure: not relevant

Process temperature: <= 40 °C

Remarks not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed process, no likelihood of exposure

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Product name: DABCO CRYSTALLINE
Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use product only in closed system.		

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories:	PROC2: Use in closed, continuous process with occasional controlled exposure
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Product name: DABCO CRYSTALLINE
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		:	1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories: PROC5: Mixing or blending in batch processes

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories: PROC10: Roller application or brushing

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions:	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet
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Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories:	PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.11. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.12. Contributing exposure scenario controlling worker exposure for: Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:

ERC5:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,023 mg/l	0,228	EUSES	none
freshwater sediment	0,285 mg/kg dry weight	0,219	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,00228 mg/l	0,228	EUSES	none
Marine sediments	0,028 mg/kg dry weight	0,219	EUSES	none
Sewage treatment plant	0,223 mg/l	< 0,01	EUSES	none
agricultural soil	0,033 mg/kg dry weight	0,174	EUSES	none
Humans via the environment	0,000613 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Product name: DABCO CRYSTALLINE
Health:
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,00102 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,000298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		< 0,01		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC2:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,006 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,024 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,029	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00599 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,03		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,021 mg/kg bw/day	0,015	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00604 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,022		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,206 mg/kg bw/day	0,147	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,183		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,03 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,301		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,18 mg/m ³	0,022	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,18 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,494 mg/kg bw/day	0,353	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,036 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,375		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC14:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,103 mg/kg bw/day	0,073	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,015 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,081		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,06 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,01 mg/kg bw/day	< 0,01	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,00298 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,015		none

Product name: DABCO CRYSTALLINE
Elastomers, TPU, Polyamide, Polyimide, synthetic fibres and manufacturing of other polymers, Use at industrial site:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,085 mg/kg bw/day	0,061	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,003 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,133		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario
X.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1.Coatings, Professional uses

List of use descriptors

Sector(s) of use	SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	<p><u>Coatings:</u> ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix</p> <p><u>Coatings:</u> ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix</p>
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List of names of contributing worker scenarios and corresponding PROCs	<p><u>Coatings:</u> PROC3: Use in closed batch process (synthesis or formulation)</p> <p><u>Coatings:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p><u>Coatings:</u> PROC5: Mixing or blending in batch processes</p> <p><u>Coatings:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p><u>Coatings:</u> PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p><u>Coatings:</u> PROC10: Roller application or brushing</p> <p><u>Coatings:</u> PROC11: Non industrial spraying</p> <p><u>Coatings:</u> PROC13: Treatment of articles by dipping and pouring</p> <p><u>Coatings:</u> PROC21: Low energy manipulation of substances bound in materials and/or articles</p>
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Product name: DABCO CRYSTALLINE

2.1. Contributing exposure scenario controlling environmental exposure for: Coatings, Professional uses
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Daily amount per site	<= 0,0495 kg
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Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m ³ /d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		15 %	0 %	30 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.

Product name: DABCO CRYSTALLINE

Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	1,109 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.1. Contributing exposure scenario controlling environmental exposure for: Coatings, Professional uses

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:	
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Product name: DABCO CRYSTALLINE

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Daily amount per site	<= 0,0495 kg
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Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		15 %	0,5 %	5 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	1,109 %

Product name: DABCO CRYSTALLINE

Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal

Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories:	PROC10: Roller application or brushing
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses
Process Categories: PROC11: Non industrial spraying

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 1 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories:	PROC13: Treatment of articles by dipping and pouring
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.10. Contributing exposure scenario controlling worker exposure for: Coatings, Professional uses

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Coatings, Professional uses:

ERC8c:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,0128 mg/l	0,013	EUSES	none
freshwater sediment	0,016 mg/kg dry weight	0,012	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,000126 mg/l	0,013	EUSES	none
Marine sediments	0,00158 mg/kg dry weight	0,0112	EUSES	none
Sewage treatment plant	0,00734 mg/l	< 0,01	EUSES	none
agricultural soil	0,00246 mg/kg dry weight	0,013	EUSES	none
Humans via the environment	0,000078 3 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Coatings, Professional uses:
ERC8f:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	0,00064 mg/l	< 0,01	EUSES	none
freshwater sediment	0,0083 mg/kg dry weight	< 0,01	EUSES	none
marine water	0,000065 1 mg/l	< 0,01	EUSES	none
Marine sediments	0,000814 mg/kg dry weight	< 0,01	EUSES	none
Sewage treatment plant	0,00122 mg/l	< 0,01	EUSES	none
agricultural soil	0,00159 mg/kg dry weight	< 0,01	EUSES	none
Humans via the environment	0,000049 5 mg/kg bw/day	< 0,01	EUSES	none

Product name: DABCO CRYSTALLINE

Humans via the environment		< 0,01	EUSES	none
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Health:
Coatings, Professional uses:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,03	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,012 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,012 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,037		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,412 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,367		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,18 mg/m ³	0,022	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,18 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,987 mg/kg bw/day	0,705	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,072 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,072 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,727		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC11:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,04 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,429 mg/kg bw/day	0,306	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,02 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,02 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,311		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC13:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,12 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,12 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Coatings, Professional uses:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	1,8 mg/m ³	0,218	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	7,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	1,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	7,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,17 mg/kg bw/day	0,121	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,006 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,006 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,34		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario
XI.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1. Professional uses

List of use descriptors

Sector(s) of use	SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	<p><u>Adhesives, sealants:</u> ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix</p> <p><u>Adhesives, sealants:</u> ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix</p>
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List of names of contributing worker scenarios and corresponding PROCs	<p><u>Adhesives, sealants:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p><u>Adhesives, sealants:</u> PROC5: Mixing or blending in batch processes</p> <p><u>Adhesives, sealants:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p><u>Adhesives, sealants:</u> PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p><u>Adhesives, sealants:</u> PROC10: Roller application or brushing</p> <p><u>Adhesives, sealants:</u> PROC11: Non industrial spraying</p> <p><u>Adhesives, sealants:</u> PROC13: Treatment of articles by dipping and pouring</p> <p><u>Adhesives, sealants:</u> PROC21: Low energy manipulation of substances bound in materials and/or articles</p>
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Product name: DABCO CRYSTALLINE

2.1. Contributing exposure scenario controlling environmental exposure for: Adhesives, sealants, Professional uses
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
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Dynamic viscosity:	This information is not available.
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Amounts used

Daily amount per site	<= 0,0495 kg
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Frequency and duration of use

Batch process:	not relevant
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Continuous process:	not relevant
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Environment factors not influenced by risk management

Flow rate of receiving surface water (m ³ /d):	not relevant
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Local freshwater dilution factor	not relevant
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Local marine water dilution factor	not relevant
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Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		15 %	0 %	30 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
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Soil	No special precautions required.
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Water	No special measures.
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Product name: DABCO CRYSTALLINE

Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	1,109 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.1. Contributing exposure scenario controlling environmental exposure for: Adhesives, sealants, Professional uses

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:	
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Product name: DABCO CRYSTALLINE

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Daily amount per site	<= 0,0495 kg
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Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		15 %	0,5 %	5 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	1,109 %

Product name: DABCO CRYSTALLINE

Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
----------------------------	--

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC10: Roller application or brushing
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC11: Non industrial spraying
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 1 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC13: Treatment of articles by dipping and pouring
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Adhesives, sealants, Professional uses

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation

Environment:

Adhesives, sealants, Professional uses:

ERC8c:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,0128 mg/l	0,013	EUSES	none
freshwater sediment	0,016 mg/kg dry weight	0,012	EUSES	none

Product name: DABCO CRYSTALLINE

marine water	0,000126 mg/l	0,013	EUSES	none
Marine sediments	0,00158 mg/kg dry weight	0,0112	EUSES	none
Sewage treatment plant	0,00734 mg/l	< 0,01	EUSES	none
agricultural soil	0,00246 mg/kg dry weight	0,013	EUSES	none
Humans via the environment	0,000078 3 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Adhesives, sealants, Professional uses:
ERC8f:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	0,00064 mg/l	< 0,01	EUSES	none
freshwater sediment	0,0083 mg/kg dry weight	< 0,01	EUSES	none
marine water	0,000065 1 mg/l	< 0,01	EUSES	none
Marine sediments	0,000814 mg/kg dry weight	< 0,01	EUSES	none
Sewage treatment plant	0,00122 mg/l	< 0,01	EUSES	none
agricultural soil	0,00159 mg/kg dry weight	< 0,01	EUSES	none
Humans via the environment	0,000049 5 mg/kg bw/day	< 0,01	EUSES	none

Product name: DABCO CRYSTALLINE

Humans via the environment		< 0,01	EUSES	none
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Health:
Adhesives, sealants, Professional uses:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,412 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,367		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Professional uses:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Professional uses:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Professional uses:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Professional uses:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,18 mg/m ³	0,022	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,18 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,987 mg/kg bw/day	0,705	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,072 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,072 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,727		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Professional uses:
PROC11:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,04 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,429 mg/kg bw/day	0,306	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,02 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,02 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,311		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Professional uses:
PROC13:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,12 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,12 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Adhesives, sealants, Professional uses:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	1,8 mg/m ³	0,218	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	7,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	1,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	7,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,17 mg/kg bw/day	0,121	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,006 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,006 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,34		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Exposure Scenario
XII.

Product name: DABCO CRYSTALLINE

Exposure scenario worker

1. Use of rigid foams, Professional uses

List of use descriptors

Sector(s) of use	SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Product categories [PC]:	

Name of contributing environmental scenario and corresponding ERC	<p><u>Use of rigid foams:</u> ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix</p> <p><u>Use of rigid foams:</u> ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix</p>
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List of names of contributing worker scenarios and corresponding PROCs	<p><u>Use of rigid foams:</u> PROC3: Use in closed batch process (synthesis or formulation)</p> <p><u>Use of rigid foams:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p><u>Use of rigid foams:</u> PROC5: Mixing or blending in batch processes</p> <p><u>Use of rigid foams:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p><u>Use of rigid foams:</u> PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p><u>Use of rigid foams:</u> PROC10: Roller application or brushing</p> <p><u>Use of rigid foams:</u> PROC11: Non industrial spraying</p> <p><u>Use of rigid foams:</u> PROC21: Low energy manipulation of substances bound in materials and/or articles</p>
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Product name: DABCO CRYSTALLINE

2.1. Contributing exposure scenario controlling environmental exposure for: Use of rigid foams, Professional uses
Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:

Kinematic viscosity:	This information is not available.
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Dynamic viscosity:	This information is not available.
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Amounts used

Daily amount per site	<= 0,0495 kg
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Frequency and duration of use

Batch process:	not relevant
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Continuous process:	not relevant
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Environment factors not influenced by risk management

Flow rate of receiving surface water (m ³ /d):	not relevant
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Local freshwater dilution factor	not relevant
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Local marine water dilution factor	not relevant
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Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		15 %	0 %	30 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
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Soil	No special precautions required.
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Water	No special measures.
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Product name: DABCO CRYSTALLINE

Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	1,109 %
Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.1. Contributing exposure scenario controlling environmental exposure for: Use of rigid foams, Professional uses

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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 %.
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Physical state	solid
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Viscosity:	
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Product name: DABCO CRYSTALLINE

Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Amounts used

Daily amount per site	<= 0,0495 kg
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Frequency and duration of use

Batch process:	not relevant
Continuous process:	not relevant

Environment factors not influenced by risk management

Flow rate of receiving surface water (m³/d):	not relevant
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant

Other given operational conditions affecting environmental exposure

type	Emission days	Emission factors			Remarks
		Air	Soil	Water	
		15 %	0,5 %	5 %	

Other relevant operational conditions	not relevant
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Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 8 of the safety data sheet (Environmental exposure controls).

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Air	No special precautions.
Soil	No special precautions required.
Water	No special measures.
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant

Size of municipal sewage system/treatment plant (m³/d):	
type:	sewage treatment plant
Discharge rate:	not relevant
Treatment effectiveness:	1,109 %

Product name: DABCO CRYSTALLINE

Sludge treatment technique:	not relevant
Measures to limit air emissions:	not relevant
Remarks:	not relevant

Conditions and measures related to external treatment of waste for disposal
Fraction of used amount transferred to external waste treatment:

Suitable waste treatment	Treatment effectiveness	Remarks
Product residual disposal complies with applicable regulations., External recovery and recycling of waste should comply with applicable local and/or national regulations.		

Conditions and measures related to external recovery of waste

This information is not available.

Additional good practice advice beyond the REACH CSA

This information is not available.

2.2. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses
Process Categories: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation., Use in closed batch process (synthesis or formulation)

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed, continuous process with occasional controlled exposure		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.3. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses

Process Categories:	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.4. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses

Process Categories:	PROC5: Mixing or blending in batch processes
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	95 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.5. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.6. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses

Process Categories:	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Product name: DABCO CRYSTALLINE
Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.7. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses

Process Categories:	PROC10: Roller application or brushing
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 4 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.8. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses

Process Categories:	PROC11: Non industrial spraying
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 5 %.
Physical form of the product:	Solid, low dustiness
Vapour pressure:	not relevant
Process temperature:	<= 40 °C
Remarks	not relevant

Amounts used

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Product name: DABCO CRYSTALLINE

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 1 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE

Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

2.9. Contributing exposure scenario controlling worker exposure for: Use of rigid foams, Professional uses

Process Categories:	PROC21: Low energy manipulation of substances bound in materials and/or articles
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Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 25 %.
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Physical form of the product:	Solid, low dustiness
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Vapour pressure:	not relevant
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Process temperature:	<= 40 °C
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Remarks	not relevant
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Amounts used

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Product name: DABCO CRYSTALLINE
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
duration of activity	< 8 h		

Human factors not influenced by risk management

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use			1 - 3	Provide a good standard of general or controlled ventilation.

Other relevant operational conditions: not relevant

Risk management measures (RMM)
Technical conditions and measures at process level (source) to prevent release

See chapter 7 of the safety data sheet

Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: DABCO CRYSTALLINE
Organisational measures to prevent/limit releases, dispersion and exposure

Application	Route of Exposure	Protective Measures	Remarks
Industrial uses:		The product should only be handled by trained personnel., Assumes a good basic standard of occupational hygiene is implemented., Process safety assessment, General standard operating procedures to control routine activities, Plant integrity checks, Integrated safety management systems, Substance-handling procedures are well documented and strictly supervised by the site operator	

Conditions and measures related to personal protection, hygiene and health evaluation

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial uses:	Inhalation	For further specification, refer to section 8 of the SDS.		
	Dermal	Wear suitable gloves tested to EN374., For further specification, refer to section 8 of the SDS.	90 %	

Additional good practice advice beyond the REACH CSA

Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Assumes a good basic standard of occupational hygiene is implemented.

Product name: DABCO CRYSTALLINE

3. Exposure estimation

Environment:

Use of rigid foams, Professional uses:

ERC8c:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	0,0128 mg/l	0,013	EUSES	none

ERC8a:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
freshwater sediment	0,016 mg/kg dry weight	0,012	EUSES	none
marine water	0,000126 mg/l	0,013	EUSES	none
Marine sediments	0,00158 mg/kg dry weight	0,0112	EUSES	none
Sewage treatment plant	0,00734 mg/l	< 0,01	EUSES	none
agricultural soil	0,00246 mg/kg dry weight	0,013	EUSES	none
Humans via the environment	0,000078 3 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Product name: DABCO CRYSTALLINE

Use of rigid foams, Professional uses:

ERC8f:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	0,00064 mg/l	< 0,01	EUSES	none
freshwater sediment	0,0083 mg/kg dry weight	< 0,01	EUSES	none
marine water	0,000065 1 mg/l	< 0,01	EUSES	none
Marine sediments	0,000814 mg/kg dry weight	< 0,01	EUSES	none
Sewage treatment plant	0,00122 mg/l	< 0,01	EUSES	none
agricultural soil	0,00159 mg/kg dry weight	< 0,01	EUSES	none
Humans via the environment	0,000049 5 mg/kg bw/day	< 0,01	EUSES	none
Humans via the environment		< 0,01	EUSES	none

Product name: DABCO CRYSTALLINE
Health:
Use of rigid foams, Professional uses:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,006 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,06 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,24 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,041 mg/kg bw/day	0,03	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,012 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,012 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,037		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Professional uses:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,6 mg/m ³	0,073	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,6 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	2,4 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,412 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,367		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Professional uses:
PROC5:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,411 mg/kg bw/day	0,294	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,33		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Professional uses:
PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Professional uses:
PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,3 mg/m ³	0,036	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,3 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,823 mg/kg bw/day	0,588	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,06 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,624		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Professional uses:
PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,18 mg/m ³	0,022	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,18 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	1,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,987 mg/kg bw/day	0,705	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,072 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,072 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,727		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Professional uses:
PROC11:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	0,04 mg/m ³	< 0,01	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	0,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	0,04 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	0,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,429 mg/kg bw/day	0,306	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,02 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,02 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,311		none

Product name: DABCO CRYSTALLINE
Use of rigid foams, Professional uses:
PROC21:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic	indoor	1,8 mg/m ³	0,218	ECETOC TRA worker v3	none
Worker - inhalative, short-term - systemic	indoor	7,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, long-term - local	indoor	1,8 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - inhalative, short-term - local	indoor	7,2 mg/m ³	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, long-term - systemic	indoor	0,17 mg/kg bw/day	0,121	ECETOC TRA worker v3	none
Worker - dermal, long-term - local	indoor	0,006 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - dermal, short-term - local	indoor	0,006 mg/cm ²	< 1	ECETOC TRA worker v3	Qualitative approach to the determination of safe use.
Worker - combined, long-term - systemic	indoor		0,34		none

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. This document aims to explain in simple terms the obligations which downstream users have to fulfil to comply with the REACH Regulation:

http://www.echa.europa.eu/documents/10162/13634/du_nutshell_guidance_en.pdf If downstream user conditions deviate from the scenario, the downstream use is assumed to be within the boundaries when the following criteria are met: Exposure estimation for the modified conditions, using the method described in the scenario or a compatible tool ("scaling tool"), is equal to or lower than the values given in the scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting his conditions. Scalable parameters, which correspond to quantitative values given in the exposure scenario, may depend on the method used for assessment. It has to be noted that basic assumptions of the methods, e.g. the exposed skin area for a specific task, may not be modified. The same applies for intrinsic substance properties like vapour pressure or diffusion rates. Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.