

Product name: KOSMOS T 12 N

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended by Commission Regulation (EU) 2020/878

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name:
KOSMOS T 12 N

Chemical name:
Dibutyl tin dilaurate

Additional identification

Chemical name: Dibutyltin dilaurate
Chemical formula: -
INDEX No. -
CAS-No. 77-58-7
EC No. 201-039-8

REACH Registration No. 01-2119496068-27

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Industrial use

Uses advised against: None known.

1.3 Details of the supplier of the safety data sheet

Company Name : Evonik Operations GmbH
Rellinghauser Str. 1-11
45128 Essen
Germany
Telephone : +49 201 173 01
Fax : +49 201 173 3000
E-mail : productsafety-sp@evonik.com

1.4 Emergency telephone number:

24-Hour Health : +49 2365 49 2232
Emergency : +49 2365 49 4423 (Fax)

Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland.
Telephone Number: +353 (0)1 809 2166

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

Product name: KOSMOS T 12 N

Classification according to Regulation (EC) No 1272/2008 as amended.
Health Hazards

Serious eye irritation	Category 2	H319: Causes serious eye irritation.
Skin sensitizer	Category 1	H317: May cause an allergic skin reaction.
Germ Cell Mutagenicity	Category 2	H341: Suspected of causing genetic defects if inhaled.
Toxic to reproduction	Category 1B	H360FD: May damage fertility. May damage the unborn child.
Specific Target Organ Toxicity - Single Exposure	Category 1	H370: Causes damage to organs.
Specific Target Organ Toxicity - Repeated Exposure	Category 1	H372: Causes damage to organs through prolonged or repeated exposure.

Environmental Hazards

Acute hazards to the aquatic environment	Category 1	H400: Very toxic to aquatic life.
Chronic hazards to the aquatic environment	Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label Elements

Signal Words:

Danger

Hazard Statement(s):

H319: Causes serious eye irritation.
 H317: May cause an allergic skin reaction.
 H341: Suspected of causing genetic defects if inhaled.
 H360FD: May damage fertility. May damage the unborn child.
 H370: Causes damage to organs.
 H372: Causes damage to organs through prolonged or repeated exposure.
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements
Prevention:

P201: Obtain special instructions before use.
 P202: Do not handle until all safety precautions have been read and understood.
 P260: Do not breathe dust/fume/gas/mist/vapors/spray.
 P270: Do not eat, drink or smoke when using this product.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

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Response:

P302+P352: IF ON SKIN: Wash with plenty of soap and water.
 P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
 P362+P364: Take off contaminated clothing and wash it before reuse.
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313: If eye irritation persists: Get medical advice/attention.
 P308+P313: IF exposed or concerned: Get medical advice/attention.
 P391: Collect spillage.

2.3 Other hazards

None known.

PBT/vPvB data

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:

Dibutyl tin dilaurate

3.1 Substances

Chemical name	Dibutyltin dilaurate
INDEX No.:	
CAS-No.:	77-58-7
EC No.:	201-039-8
Chemical name	Dibutyltin dilaurate
INDEX No.:	
CAS-No.:	77-58-7
EC No.:	201-039-8
REACH Registration No.:	01-2119496068-27

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
Dibutyltin dilaurate	50 - <100%	77-58-7	201-039-8	01-2119496068-27;	Aquatic Toxicity (Acute): 1; Aquatic Toxicity (Chronic): 1	#

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

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volume.

This substance has workplace exposure limit(s).

This substance is listed as SVHC.

Classification

Chemical name	Classification	Notes
Dibutyltin dilaurate	Classification: Eye Irrit.: 2: H319; Skin Sens.: 1: H317; Muta.: 2: H341; Repr.: 1B: H360FD; STOT SE: 1: H370; STOT RE: 1: H372; Aquatic Acute: 1: H400; Aquatic Chronic: 1: H410 Supplemental label information: None known. Specific concentration limit: None known. Acute toxicity, oral: LD 50: 2.071 mg/kg Acute toxicity, inhalation: None known. Acute toxicity, dermal: LD 50: > 2.000 mg/kg	None.

CLP: Regulation No. 1272/2008.

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

General information:	Remove soiled or soaked clothing immediately Symptoms of poisoning may appear several hours later. Keep under medical supervision for at least 48 hours.
Inhalation:	fresh air supply, consult a doctor if feeling unwell.
Skin Contact:	In case of contact with skin wash off with soap and water. Get medical attention immediately.
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 Call for medical advice immediately; show this safety data sheet
Personal Protection for First-aid Responders:	No data available.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:	corrosive effects sensitising effects toxic effects for reproduction mutagenic effects
Hazards:	No data available.

4.3 Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.
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SECTION 5: Firefighting measures

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General Fire Hazards: Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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 - Tin oxide Under certain conditions of combustion traces of other toxic substances cannot be excluded

5.3 Advice for firefighters

Special fire fighting procedures: No specific precautions.

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Ensure adequate ventilation.

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 Prevent product from getting into subsoil/soil.

6.3 Methods and material for containment and cleaning up:

Take up with absorbent material (eg sand, kieselguhr, 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

Technical measures: No data available.

Local/Total ventilation: No data available.

Safe handling advice: Avoid contact with skin and eyes. Do not inhale gases/vapours/aerosols. Provide good ventilation of working area (local exhaust ventilation if necessary). Avoid formation of aerosol.

Contact avoidance measures: No data available.

7.2 Conditions for safe storage, including any incompatibilities

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Safe storage conditions: Keep container tightly closed in a cool, well-ventilated place. Do not store or transport together with foodstuffs

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

Chemical name	Type	Form of exposure	Exposure Limit Values	Source
Dibutyltin dilaurate	TWA	as Sn	0,1 mg/m ³	ELV (IE) (01 2020)
	STEL 15 minutes	as Sn	0,2 mg/m ³	ELV (IE) (01 2020)
Bis(tributyltin) oxide	STEL 15 minutes	as Sn	0,2 mg/m ³	ELV (IE) (01 2020)
	TWA	as Sn	0,1 mg/m ³	ELV (IE) (01 2020)

Please refer to the latest edition of the appropriate source text and consult an industrial hygienist or similar professional, or local agencies, for further information.

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
Dibutyltin dilaurate	Workers	Dermal	Systemic, short-term; 2,08 mg/kg	Immunotoxicity
	Workers	Inhalation	Systemic, short-term; 0,059 mg/m ³	Repeated dose toxicity
	General population	Oral	Systemic, short-term; 0,02 mg/kg	developmental toxicity / teratogenicity
	General population	Dermal	Systemic, short-term; 0,5 mg/kg	Immunotoxicity
	General population	Dermal	Systemic, long-term; 0,16 mg/kg	Repeated dose toxicity
	Workers	Dermal	Systemic, long-term; 0,43 mg/kg	Repeated dose toxicity
	General population	Inhalation	Systemic, long-term; 0,005 mg/m ³	Repeated dose toxicity
	General population	Oral	Systemic, long-term; 0,003 mg/kg	Repeated dose toxicity
	General population	Inhalation	Systemic, short-term; 0,04 mg/m ³	developmental toxicity / teratogenicity
	Workers	Inhalation	Systemic, long-term; 0,02 mg/m ³	Repeated dose toxicity
	Workers	Eyes	Local effect;	No hazard identified
	General population	Eyes	Local effect;	No hazard identified

PNEC-Values

Remarks: PNEC-Values

Critical component	Environmental compartment	PNEC-Values	Remarks
Dibutyltin dilaurate	Aquatic (freshwater)	0 mg/l	
	Aquatic (marine water)	0 mg/l	
	Predator	0,2 mg/kg	Oral
	Sediment (marine water)	0,005 mg/kg	

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	Soil	0,041 mg/kg	Soil
	Sewage treatment plant	100 mg/l	
	Sediment (freshwater)	0,05 mg/kg	

8.2 Exposure controls

Appropriate Engineering Controls: No data available.

Individual protection measures, such as personal protective equipment

Eye/face protection:	Tightly fitting safety goggles
Hand Protection:	<p>Material: gloves made of natural latex Break-through time: > 60 min Glove thickness: 0,5 mm 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.</p> <p>Material: gloves made of natural latex Break-through time: > 120 min Glove thickness: 1 mm</p> <p>Material: gloves made of chloroprene (CR, e.g. Neoprene) Break-through time: > 480 min Glove thickness: 0,6 mm</p> <p>Material: gloves made of nitril (NBR) Break-through time: > 480 min Glove thickness: 0,4 mm</p> <p>Material: gloves made of butyl (IIR) Break-through time: > 480 min Glove thickness: 0,3 mm</p>
Skin and Body Protection:	protective clothing
Respiratory Protection:	in case of formation of vapours/aerosols: Short term: filter apparatus, combination filter A-P2
Hygiene measures:	Wash hands before breaks and immediately after handling the product. When using do not eat, drink or smoke. 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

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	liquid
Form:	liquid
Color:	yellowish
Odor:	Characteristic
Odor Threshold:	not measured
Freezing point:	16 - 18 °C Method: DIN/ISO 3016
Boiling Point:	> 200 °C
Flammability:	No data available.

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Upper/lower limit on flammability or explosive limits

Explosive limit - upper:	Not applicable
Explosive limit - lower:	Not applicable
Flash Point:	> 180 °C Method: DIN EN 22719
Auto-ignition temperature:	not measured
Decomposition Temperature:	not measured
pH:	Not determined.

Viscosity

Dynamic viscosity:	30 mPa.s (20 °C) Method: DIN 53019
Kinematic viscosity:	No data available.

Solubility(ies)

Solubility in Water:	Marginally Soluble
Solubility (other):	not measured
Partition coefficient (n-octanol/water):	not measured

Vapor pressure:	0,00077 hPa
Relative density:	No data available.
Density:	1,03 g/cm ³ (20 °C) Method: DIN 51757
Relative vapor density:	not measured

9.2 Other information

Explosive properties:	no danger of explosion
Oxidizing properties:	not measured
Pyrophoric properties:	not measured
Metal Corrosion:	not measured
Evaporation Rate:	No data available.

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:	Unknown
10.5 Incompatible Materials:	Unknown
10.6 Hazardous Decomposition Products:	None with proper storage and handling.

SECTION 11: Toxicological information
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Product name: KOSMOS T 12 N

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

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.
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.

Acute toxicity (list all possible routes of exposure)

Oral

Product:	LD 50, Rat, 2.071 mg/kg, OECD 401
Components:	
Dibutyltin dilaurate	LD 50, Rat, Female, Male, 2.071 mg/kg, OECD 401

Dermal

Product:	LD 50, Rat, > 2.000 mg/kg, OECD 402
Components:	
Dibutyltin dilaurate	LD 50, Rat, Female, Male, > 2.000 mg/kg, OECD 402

Inhalation

Product:	Not classified for acute toxicity based on available data.
Components:	
Dibutyltin dilaurate	Vapour, Not toxic after single exposure, No data available. Dust and mist, Not toxic after single exposure, No data available.

Repeated dose toxicity

Product:	No data available.
Components:	
Dibutyltin dilaurate	No data available.

Skin Corrosion/Irritation

Product:	not corrosive, non- corrosive, Based on available data, the classification criteria are not met.
Components:	
Dibutyltin dilaurate	Not irritating, OECD 431, Human, reconstructed epidermis (RhE) model

Serious Eye Damage/Eye Irritation

Product:	Causes serious eye irritation., OECD 405, Rabbit, Severely irritating to eyes.
Components:	
Dibutyltin dilaurate	Irritating., OECD 405, Rabbit

Respiratory or Skin Sensitization

Product:	OECD 406, Guinea Pig, Sensitising
Components:	
Dibutyltin dilaurate	Maximization Test, OECD 406, Guinea Pig, May cause sensitization by skin contact.

Carcinogenicity

Product:	Based on available data, the classification criteria are not met.
Components:	
Dibutyltin dilaurate	No data available.

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Germ Cell Mutagenicity

Category 1B Mutagen.

In vitro

Product: No data available.
Components:
 Dibutyltin dilaurate Ames test, OECD 471: , negative

In vivo

Product: No data available.
Components:
 Dibutyltin dilaurate No data available.

Reproductive toxicity

Product: May damage fertility. May damage the unborn child.
Components:
 Dibutyltin dilaurate Presumed human reproductive toxicant May damage fertility. May damage the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: thymus gland, Causes damage to organs.

Components:
 Dibutyltin dilaurate Inhalation - vapor Oral Dermal, thymus, Category 1, Causes damage to organs.

Specific Target Organ Toxicity - Repeated Exposure

Product: thymus gland, Causes damage to organs through prolonged or repeated exposure.

Components:
 Dibutyltin dilaurate Inhalation - vapor Oral Dermal, thymus, Category 1 Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Product: Not classified
Components:
 Dibutyltin dilaurate Not classified

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:
 Dibutyltin dilaurate No data available.

Other information

Product: None known.;

SECTION 12: Ecological information

12.1 Toxicity:

Product name: KOSMOS T 12 N

Acute hazards to the aquatic environment:
Fish
Product: LC 50, Zebra Fish, 96 h, 3,1 mg/l OECD 203

Components:
 Dibutyltin dilaurate LC 50, Danio rerio, 96 h, 3,1 mg/l OECD 203

Aquatic Invertebrates
Product: EC 50, Daphnia magna, 48 h, 463 µg/l OECD 202

Components:
 Dibutyltin dilaurate EC 50, Daphnia magna, 48 h, 0,46 mg/l OECD 202
 NOEC, Daphnia magna, 48 h, 1,7 mg/l OECD 202

Toxicity to Aquatic Plants
Product: EC 50 (Desmodesmus subspicatus (green algae), 72 h): > 1 mg/l (OECD 201)

Components:
 Dibutyltin dilaurate EC 50 (Desmodesmus subspicatus (green algae), 72 h): 1 mg/l (OECD 201)

Toxicity to microorganisms
Product: No data available.

Components:
 Dibutyltin dilaurate EC 50, activated sludge, 3 h, > 1.000 mg/l, OECD 209
 NOEC, activated sludge, 3 h, 1.000 mg/l, OECD 209

Toxicity to soil dwelling organisms
Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

Toxicity to terrestrial organisms
Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

Chronic hazards to the aquatic environment:
Fish
Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

Aquatic Invertebrates
Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

Toxicity to Aquatic Plants
Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

Toxicity to microorganisms
Product: No data available.

Components:
 Dibutyltin dilaurate EC 50, activated sludge, 3 h, > 1.000 mg/l, OECD 209
 NOEC, activated sludge, 3 h, 1.000 mg/l, OECD 209

Product name: KOSMOS T 12 N

Toxicity to soil dwelling organisms

Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

Toxicity to terrestrial organisms

Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

12.2 Persistence and Degradability

Biodegradation

Product: No data available.

Components:
 Dibutyltin dilaurate 23 %, 39 d, OECD 301 F, The product is not biodegradable., anaerobic

BOD/COD Ratio

Product: No data available.

12.3 Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Components:
 Dibutyltin dilaurate No data available.

Partition Coefficient n-octanol / water (log Kow)

Product: not measured

Components:
 Dibutyltin dilaurate 4,44

12.4 Mobility in soil:

Product No data available.

Components:
 Dibutyltin dilaurate 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:
 Dibutyltin dilaurate 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:
 Dibutyltin dilaurate No data available.

Product name: KOSMOS T 12 N

12.7 Other adverse effects:

Other hazards

Product:

The product is classified as highly hazardous to waters (according to the German Regulation on the Classification of Substances Hazardous to Waters (WwSV). Do not allow to enter soil, waterways or waste water canal.

SECTION 13: Disposal considerations

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

14.1 UN/ID No.

ADR	: UN 3082
RID	: UN 3082
IMDG	: UN 3082
IATA	: UN 3082

14.2 UN proper shipping name

ADR	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dibutyl tin dilaurate)
RID	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dibutyl tin dilaurate)
IMDG	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dibutyl tin dilaurate)
IATA	: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl tin dilaurate)

14.3 Transport hazard class(es)

ADR	: 9
RID	: 9
IMDG	: 9
IATA	: 9

14.4 Packing group

ADR	
Packing group	: III
Classification Code	: M6

Product name: KOSMOS T 12 N

Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

RID

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

IMDG

Packing group : III
Labels : 9
EmS Code : F-A, S-F
Remarks : IMDG Code segregation group 7 - Heavy metals and their salts (incl. their organometallic compounds)

IATA (Cargo aircraft only)

Packing instruction (cargo aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : 9MI

IATA (Passenger and cargo aircraft)

Packing instruction (passenger aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : 9MI

14.5 Environmental hazards**ADR**

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger and cargo aircraft)

Environmentally hazardous : yes

IATA (Cargo aircraft only)

Environmentally hazardous : yes

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:**

Product name: KOSMOS T 12 N
EU Regulations
Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

Chemical name	CAS-No.	Entry No:
Dibutyltin dilaurate	77-58-7	20 3
Bis(tributyltin) oxide	56-35-9	20 3

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I:

Classification	Lower-tier Requirements	Upper-tier Requirements
E1. Hazardous to the aquatic environment	100 t	200 t
H3. STOT SE	50 t	200 t

15.2 Chemical safety assessment: A substance safety assessment was carried out for this product.

SECTION 16: Other information
Abbreviations and acronyms:

IR_OEL:	Ireland. OELVs, Schedule 1 (Code of Practice for Chemical Agents Regulations), as amended
IR_OEL / STEL:	Short Term Exposure Limit (STEL):
IR_OEL / TWA:	Time Weighted Average (TWA):

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EIGA - European Industrial Gases Association; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI -

Product name: KOSMOS T 12 N

Taiwan Chemical Substance Inventory; TECl - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

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 of the substance, industrial
Exposure Scenario II.	Formulation into mixture (mixtures), Formulation in materials, industrial
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Exposure Scenario I.

Exposure scenario worker

1.Manufacture of the substance, industrial

List of use descriptors	
Life Cycle Stage	
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

Product name: KOSMOS T 12 N

List of names of contributing worker scenarios and corresponding PROCs	<p><u>Manufacture:</u> PROC1: Use in closed process, no likelihood of exposure</p> <p><u>Manufacture:</u> PROC3: Use in closed batch process (synthesis or formulation)</p> <p><u>Manufacture:</u> PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p><u>Manufacture:</u> PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p><u>Manufacture:</u> PROC15: Use as laboratory reagent</p> <p><u>Manufacture:</u> PROC28: Manual maintenance (cleaning and repair) of machinery</p> <p>PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p>
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2.1. Contributing exposure scenario controlling environmental exposure for: Manufacture

Environmental Release Category (ERC)	ERC1: Manufacture of the substance
Product characteristics	
Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 % (unless stated differently).
Physical state	
Viscosity:	
Kinematic viscosity:	This information is not available.
Dynamic viscosity:	This information is not available.

Product name: KOSMOS T 12 N

Amounts used

Daily amount per site	10 tonnes/day
Annual amount per site	200 t(onnes)/year

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):	0 m3/d 0 m3/d
Local freshwater dilution factor	not relevant
Local marine water dilution factor	not relevant
Other factors:	Receiving surface water flow (m3/day): Local freshwater dilution factor

Other given operational conditions affecting environmental exposure

Other relevant operational conditions	Release rate applicable to water: 0,00001 kg/day Release rate applicable to air: 0 kg/day Release rate applicable to soil: 100 kg/day
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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	not relevant
Soil	not relevant
Water	not relevant
Sediment:	not relevant
Remarks:	not relevant

Organisational measures to prevent/limit release from site:

none

Conditions and measures related to sewage treatment plant
Conditions and measures related to external treatment of waste for disposal

This information is not available.

Conditions and measures related to external recovery of waste

This information is not available.

Product name: KOSMOS T 12 N

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 % (unless stated differently).

Physical form of the product: not relevant

Vapour pressure: not relevant

Process temperature: not relevant

Remarks not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in closed process, no likelihood of exposure:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in closed process, no likelihood of exposure:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.3. 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 % (unless stated differently).

Physical form of the product: not relevant

Vapour pressure: not relevant

Process temperature: not relevant

Remarks not relevant

Amounts used

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Product name: KOSMOS T 12 N

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use in closed batch process (synthesis or formulation):	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in closed batch process (synthesis or formulation):	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: KOSMOS T 12 N

2.4. 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 % (unless stated differently).
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Physical form of the product:	not relevant
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Vapour pressure:	not relevant
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Process temperature:	not relevant
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Remarks	not relevant
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Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use in batch and other process (synthesis) where opportunity for exposure arises:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: KOSMOS T 12 N

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in batch and other process (synthesis) where opportunity for exposure arises:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.5. 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 PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) 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 100 % (unless stated differently).
Physical form of the product:	not relevant
Vapour pressure:	not relevant
Process temperature:	not relevant
Remarks	not relevant

Amounts used
Frequency and duration of use

This information is not available.

Product name: KOSMOS T 12 N

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		: 40 °C		

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
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	Local exhaust ventilation 90% (LEV 90%)		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Safety goggles		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.6. 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 % (unless stated differently).

Physical form of the product: not relevant

Vapour pressure: not relevant

Process temperature: not relevant

Remarks not relevant

Amounts used

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Product name: KOSMOS T 12 N

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use as laboratory reagent:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use as laboratory reagent:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: KOSMOS T 12 N

2.7. Contributing exposure scenario controlling worker exposure for: Manufacture

Process Categories:	PROC28: Manual maintenance (cleaning and repair) of machinery PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) 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 100 % (unless stated differently).
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Physical form of the product:	not relevant
Vapour pressure:	not relevant
Process temperature:	not relevant
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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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Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Manual maintenance (cleaning and repair) of machinery, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Manual maintenance (cleaning and repair) of machinery, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Safety goggles		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Manufacture:

ERC1:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	5,8 ng/L	0,013		none
freshwater sediment	88 ng/kg dry weight	0,01		none
marine water	5,8 ng/L	0,125		none
Marine sediments	88 ng/kg dry weight	0,018		none
Sewage treatment plant	680 µg/l	0,01		none

Product name: KOSMOS T 12 N

agricultural soil	8 ng/kg dry weight	0,01		none
Humans via the environment	117 ng/m ³	0,025		none
Humans via the environment	5,84 ng/kg wet weight	0,01		none

Health:
Manufacture:
PROC1:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,01 mg/m ³	0,01		none
Worker - dermal, long-term - systemic		0,0017 mg/kg bw/day	0,01		none

Manufacture:
PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,000077 mg/m ³	0,01		none
Worker - dermal, long-term - systemic		0,034 mg/kg bw/day	0,08		none

Manufacture:
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,00077 mg/m ³	0,038		none
Worker - dermal, long-term - systemic		0,343 mg/kg bw/day	0,798		none

Product name: KOSMOS T 12 N
Manufacture:
PROC8a, PROC9, PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none

Manufacture:
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,0013 mg/m ³	0,065		none
Worker - dermal, long-term - systemic		0,002 mg/kg bw/day	0,01		none

Manufacture:
PROC28, PROC9, PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none

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

This information is not available.

Exposure Scenario

II.

Exposure scenario worker

1.Formulation into mixture (mixtures), Formulation in materials, industrial

Product name: KOSMOS T 12 N

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Product categories [PC]:	PC1: Adhesives, sealants PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC21: Laboratory chemicals PC32: Polymer preparations and compounds

Name of contributing environmental scenario and corresponding ERC	Formulation into mixture (mixtures): ERC2: Formulation into mixture (mixtures) ERC3: Formulation in materials
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List of names of contributing worker scenarios and corresponding PROCs	: PROC3: Use in closed batch process (synthesis or formulation) : : PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises : : PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities : : PROC15: Use as laboratory reagent : : PROC28: Manual maintenance (cleaning and repair) of machinery
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2.1. Contributing exposure scenario controlling environmental exposure for: Formulation into mixture (mixtures), Formulation in materials

Environmental Release Category (ERC)	ERC2 ERC3: Formulation into mixture (mixtures) Formulation in materials
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Product name: KOSMOS T 12 N

Product characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 % (unless stated differently).
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Physical state	
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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	2 tonnes/day
Regional use tonnage (tons/year):	200 t(onnes)/year

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 factors:	Receiving surface water flow (m3/day):

Other given operational conditions affecting environmental exposure

Other relevant operational conditions	Release rate applicable to water: 2,000 kg/day Release rate applicable to air: 2,000 kg/day Release rate applicable to soil: 2,000 kg/day
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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	not relevant
Soil	not relevant
Water	not relevant
Sediment:	not relevant
Remarks:	not relevant

Product name: KOSMOS T 12 N

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:	Municipal Sewage Treatment Plant
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

This information is not available.

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 characteristics

Concentration of the substance in a mixture:	Covers percentage substance in the product up to 100 % (unless stated differently).
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Physical state	
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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	2 tonnes/day
Regional use tonnage (tons/year):	200 t(onnes)/year

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

Product name: KOSMOS T 12 N

Local marine water dilution factor	not relevant
Other factors:	Receiving surface water flow (m ³ /day):

Other given operational conditions affecting environmental exposure

Other relevant operational conditions	Release rate applicable to water: 2,000 kg/day Release rate applicable to air: 2,000 kg/day Release rate applicable to soil: 2,000 kg/day
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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	not relevant
Soil	not relevant
Water	not relevant
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:	Municipal Sewage Treatment Plant
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

This information is not available.

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: KOSMOS T 12 N

2.2. Contributing exposure scenario controlling worker exposure for:

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 % (unless stated differently).
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Physical form of the product:	not relevant
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Vapour pressure:	not relevant
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Process temperature:	not relevant
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Remarks	not relevant
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Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use in closed batch process (synthesis or formulation):	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Product name: KOSMOS T 12 N

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in closed batch process (synthesis or formulation):	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.3. Contributing exposure scenario controlling worker exposure for:

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 % (unless stated differently).
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Physical form of the product:	not relevant
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Vapour pressure:	not relevant
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Process temperature:	not relevant
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Remarks	not relevant
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Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Product name: KOSMOS T 12 N

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use in batch and other process (synthesis) where opportunity for exposure arises:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in batch and other process (synthesis) where opportunity for exposure arises:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.4. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
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Product name: KOSMOS T 12 N

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:	liquid
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
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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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Product name: KOSMOS T 12 N
Technical conditions and measures to control dispersion from source towards the worker

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.5. Contributing exposure scenario controlling worker exposure for:
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 % (unless stated differently).

Physical form of the product: liquid

Vapour pressure: not relevant

Process temperature: 40 °C

Remarks not relevant

Amounts used

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Product name: KOSMOS T 12 N

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use as laboratory reagent:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use as laboratory reagent:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
		Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: KOSMOS T 12 N

2.6. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC28: Manual maintenance (cleaning and repair) of machinery
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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).
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Physical form of the product:	not relevant
Vapour pressure:	not relevant
Process temperature:	not relevant
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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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Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Manual maintenance (cleaning and repair) of machinery, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or mixture (charging and discharging) at dedicated facilities:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Manual maintenance (cleaning and repair) of machinery, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
Manual maintenance (cleaning and repair) of machinery, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Transfer of substance or mixture (charging and discharging) at dedicated facilities:	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: KOSMOS T 12 N

3. Exposure estimation

Environment:

Formulation into mixture (mixtures), Formulation in materials:

ERC2:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	5,8 ng/L	0,013		none
freshwater sediment	88 ng/kg dry weight	0,01		none
marine water	5,8 ng/L	0,125		none
Marine sediments	88 ng/kg dry weight	0,018		none
Sewage treatment plant	680 µg/l	0,01		none
agricultural soil	8 ng/kg dry weight	0,01		none

ERC3:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	5,8 ng/L	0,013		none
freshwater sediment	88 ng/kg dry weight	0,01		none
marine water	5,8 ng/L	0,125		none
Marine sediments	88 ng/kg dry weight	0,018		none
agricultural soil	680 µg/l	0,01		none

Product name: KOSMOS T 12 N

Health:

PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,000077 mg/m ³	0,01		none
Worker - dermal, long-term - systemic		0,034 mg/kg bw/day	0,08		none

PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - inhalative, long-term - systemic		0,0000077 mg/m ³	0,038		none
Worker - dermal, long-term - systemic		0,343 mg/kg bw/day	0,798		none

PROC8a, PROC9, PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,1 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,16 mg/m ³	0,08		none

PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,02 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0013 mg/m ³	0,065		none

Product name: KOSMOS T 12 N

PROC28, PROC9, PROC8b:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none

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

This information is not available.

Exposure Scenario

III.

Exposure scenario worker

1. Use of intermediate, industrial

List of use descriptors	
Life Cycle Stage	
Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU12: Manufacture of plastics products, including compounding and conversion SU16: Manufacture of computer, electronic and optical products, electrical equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU23: Recycling
Product categories [PC]:	PC1: Adhesives, sealants PC9a: Coatings and paints, thinners, paint removers PC21: Laboratory chemicals
Name of contributing environmental scenario and corresponding ERC	<u>Use of intermediate:</u> ERC6a: Use of intermediate

Product name: KOSMOS T 12 N

List of names of contributing worker scenarios and corresponding PROCs	<p>⋮ PROC3: Use in closed batch process (synthesis or formulation)</p> <p>⋮ PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>⋮ PROC7: Industrial spraying</p> <p>⋮ PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>⋮ PROC10: Roller application or brushing</p> <p>⋮ PROC15: Use as laboratory reagent</p> <p>⋮ PROC19: Hand-mixing with intimate contact and only PPE available</p> <p>⋮ PROC28: Manual maintenance (cleaning and repair) of machinery</p> <p>PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p>
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2.1. Contributing exposure scenario controlling environmental exposure for: Use of intermediate

Environmental Release Category (ERC)	ERC6a: Use of intermediate
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Product name: KOSMOS T 12 N

Product characteristics

Concentration of the substance in a mixture:

Physical state

liquid

Viscosity:

Kinematic viscosity:

This information is not available.

Dynamic viscosity:

This information is not available.

Amounts used

Regional use tonnage (tons/year):

100 t(onnes)/year

Daily amount per site

5 tonnes/day

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

Other relevant operational conditions

Release rate applicable to water: 0,005

Release rate applicable to air: 0,005

Release rate applicable to soil: 0,005

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

not relevant

Soil

not relevant

Water

not relevant

Sediment:

not relevant

Remarks:

not relevant

Organisational measures to prevent/limit release from site:

none

Product name: KOSMOS T 12 N

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

type:	Municipal Sewage Treatment Plant
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

This information is not available.

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:

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

Concentration of the substance in a mixture:	
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Physical form of the product:	not relevant
Vapour pressure:	not relevant
Process temperature:	not relevant
Remarks	not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Product name: KOSMOS T 12 N

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use in closed batch process (synthesis or formulation):	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in closed batch process (synthesis or formulation):	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.3. Contributing exposure scenario controlling worker exposure for:

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

Product characteristics

Concentration of the substance in a mixture:

Physical form of the product:

not relevant

Vapour pressure:

not relevant

Product name: KOSMOS T 12 N

Process temperature:	not relevant
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use in batch and other process (synthesis) where opportunity for exposure arises:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in batch and other process (synthesis) where opportunity for exposure arises:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.4. Contributing exposure scenario controlling worker exposure for:
Process Categories: PROC7: Industrial spraying

Product characteristics
Concentration of the substance in a mixture:
Physical form of the product: not relevant

Vapour pressure: not relevant

Process temperature: not relevant

Remarks not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		4 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

Other relevant operational conditions: not relevant

Product name: KOSMOS T 12 N

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 spraying:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation	95 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Industrial spraying:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.5. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) 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:	
Physical form of the product:	not relevant

Product name: KOSMOS T 12 N

Vapour pressure:	not relevant
Process temperature:	not relevant
Remarks	not relevant

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.6. Contributing exposure scenario controlling worker exposure for:
Process Categories: PROC10: Roller application or brushing

Product characteristics
Concentration of the substance in a mixture:
Physical form of the product: not relevant

Vapour pressure: not relevant

Process temperature: not relevant

Remarks not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		: 40 °C		

Product name: KOSMOS T 12 N

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
Roller application or brushing:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Roller application or brushing:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.7. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC15: Use as laboratory reagent
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Product characteristics

Concentration of the substance in a mixture:	
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Physical form of the product:	not relevant
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Vapour pressure:	not relevant
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Process temperature:	not relevant
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Remarks	not relevant
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Product name: KOSMOS T 12 N

Amounts used

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Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use as laboratory reagent:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use as laboratory reagent:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.8. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC19: Hand-mixing with intimate contact and only PPE available
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Product characteristics

Concentration of the substance in a mixture:	
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Physical form of the product:	not relevant
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Vapour pressure:	not relevant
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Process temperature:	not relevant
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Remarks	not relevant
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Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

Other relevant operational conditions:	not relevant
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Product name: KOSMOS T 12 N

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
Hand-mixing with intimate contact and only PPE available:	Inhalation	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

See chapter 8 of the safety data sheet (Personal protection equipment)

Additional good practice advice beyond the REACH CSA

This information is not available.

2.9. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC28: Manual maintenance (cleaning and repair) of machinery PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) 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:	
Physical form of the product:	not relevant
Vapour pressure:	not relevant
Process temperature:	not relevant
Remarks	not relevant

Amounts used

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Product name: KOSMOS T 12 N

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use		40 °C		

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
:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: KOSMOS T 12 N

3. Exposure estimation

Environment:

Use of intermediate:

ERC6a:

Compartment	Predicted environmental concentration (PEC)	Risk characterisation ratio (RCR)	Method	Remarks
Fresh water	5,8 ng/L	0,013		none
freshwater sediment	88 ng/kg dry weight	0,01		none
marine water	5,8 ng/L	0,125		none
Marine sediments	88 ng/kg dry weight	0,018		none
Sewage treatment plant	680 µg/l	0,01		none
agricultural soil	8 ng/kg dry weight	0,01		none

Health:

PROC3:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,034 mg/kg bw/day	0,08		none
Worker - inhalative, long-term - systemic		0,000077 mg/m ³	0,01		none

Product name: KOSMOS T 12 N
PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,343 mg/kg bw/day	0,798		none
Worker - inhalative, long-term - systemic		0,000077 mg/m ³	0,038		none

PROC7:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none

PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none

PROC10:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,1 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,00096 mg/m ³	0,048		none

Product name: KOSMOS T 12 N
PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,002 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0013 mg/m ³	0,065		none

PROC19:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,000014 mg/m ³	0,01		none

PROC28:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none

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

This information is not available.

Exposure Scenario
IV.
Exposure scenario worker
1. Industrial use resulting in inclusion into or onto a matrix, industrial
List of use descriptors
Life Cycle Stage

Product name: KOSMOS T 12 N

Sector(s) of use	SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU12: Manufacture of plastics products, including compounding and conversion
Product categories [PC]:	PC32: Polymer preparations and compounds

Name of contributing environmental scenario and corresponding ERC	<u>Industrial use resulting in inclusion into or onto a matrix:</u> ERC5: Industrial use resulting in inclusion into or onto a matrix
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List of names of contributing worker scenarios and corresponding PROCs	<p>∴ PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>∴ PROC6: Calendering operations</p> <p>∴ PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>∴ PROC15: Use as laboratory reagent</p> <p>∴ PROC28: Manual maintenance (cleaning and repair) of machinery</p> <p>PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p>
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2.1. Contributing exposure scenario controlling environmental exposure for: Industrial use resulting in inclusion into or onto a matrix

Environmental Release Category (ERC)	ERC5: Industrial use resulting in inclusion into or onto a matrix
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Product name: KOSMOS T 12 N

Product characteristics

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

Amounts used

Regional use tonnage (tons/year):	100 t(onnes)/year
Daily amount per site	5 tonnes/day

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

Other relevant operational conditions	Release rate applicable to water: 0,05 kg/day Release rate applicable to air: 0,05 kg/day Release rate applicable to soil: 500 kg/day
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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	not relevant
Soil	not relevant
Water	not relevant
Sediment:	not relevant
Remarks:	not relevant

Product name: KOSMOS T 12 N

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:	Municipal Sewage Treatment Plant
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

This information is not available.

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:

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:	not relevant
Vapour pressure:	not relevant
Process temperature:	40 °C
Remarks	not relevant

Amounts used

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Product name: KOSMOS T 12 N

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use		40 °C		

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
Use in batch and other process (synthesis) where opportunity for exposure arises:	Inhalation	Provide a basic standard of general ventilation (1 to 3 air changes per hour).		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use in batch and other process (synthesis) where opportunity for exposure arises:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

Product name: KOSMOS T 12 N

2.3. Contributing exposure scenario controlling worker exposure for:

Process Categories: PROC6: Calendering operations

Product characteristics

Concentration of the substance in a mixture:

Physical form of the product: not relevant

Vapour pressure: not relevant

Process temperature: 250 °C

Remarks: not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		250 °C		

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
Calendering operations:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation	90 %	

Product name: KOSMOS T 12 N

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Calendering operations:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.4. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) 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:	
Physical form of the product:	not relevant
Vapour pressure:	not relevant
Process temperature:	40 °C
Remarks	not relevant

Amounts used

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Product name: KOSMOS T 12 N

Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use		40 °C		

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
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

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

Product characteristics
Concentration of the substance in a mixture:
Physical form of the product: not relevant

Vapour pressure: not relevant

Process temperature: 40 °C

Remarks not relevant

Amounts used
Frequency and duration of use

	Use duration:	Frequency of use:	Remarks
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature :	Ventilation rate	Remarks
Indoor use		40 °C		

Product name: KOSMOS T 12 N

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
Use as laboratory reagent:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation	90 %	

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
Use as laboratory reagent:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

2.6. Contributing exposure scenario controlling worker exposure for:

Process Categories:	PROC28: Manual maintenance (cleaning and repair) of machinery PROC9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) 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:	
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Product name: KOSMOS T 12 N

Physical form of the product:	not relevant
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
Application duration		8 hours/day	

Human factors not influenced by risk management

This information is not available.

Other given operational conditions affecting workers exposure

Area of use	Room size:	Temperature	Ventilation rate	Remarks
Indoor use		40 °C		

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
:	Inhalation	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).		
	Inhalation	with local exhaust ventilation		

Organisational measures to prevent/limit releases, dispersion and exposure

This information is not available.

Product name: KOSMOS T 12 N

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

Application	Route of Exposure	Protective Measures	Effectiveness	Remarks
:	Dermal	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.		
	eye exposure	Use suitable eye protection.		

Additional good practice advice beyond the REACH CSA

This information is not available.

3. Exposure estimation

Environment:

Industrial use resulting in inclusion into or onto a matrix:

ERC5:

Compartment	Predicted environmental concentration (PEC)	Risk characterization ratio (RCR)	Method	Remarks
Fresh water	5,8 ng/L	0,013		none
freshwater sediment	88 ng/kg dry weight	0,01		none
marine water	5,8 ng/L	0,125		none
Marine sediments	88 ng/kg dry weight	0,018		none
agricultural soil	8 ng/kg dry weight	0,01		none

Product name: KOSMOS T 12 N

Health:

PROC4:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,343 mg/kg bw/day	0,798		none
Worker - inhalative, long-term - systemic		0,0000077 mg/m ³	0,038		none

PROC6:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,00088 mg/m ³	0,044		none

PROC8a:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none

PROC15:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,002 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0013 mg/m ³	0,065		none

Product name: KOSMOS T 12 N

PROC28:

Route of Exposure	Specific condition	Exposure level	Risk characterisation ratio (RCR)	Method	Remarks
Worker - dermal, long-term - systemic		0,001 mg/kg bw/day	0,01		none
Worker - inhalative, long-term - systemic		0,0016 mg/m ³	0,08		none

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

This information is not available.