SAFETY DATA SHEET

1. Identification

Product identifier: DYNOL™ 360

Chemical name: Thioether

Other means of identification

Recommended use: Industrial use

Recommended restrictions: None known.

Manufacturer/Importer/Distributor Information

Company Name	:	Evonik India Pvt Ltd Krislon House, Saki Vihar Road, Sakinaka, Andheri (East) Mumbai - 400072 Maharashtra, India
Telephone	:	+91 22 6723 8800
E-mail	:	productsafety-cs@evonik.com

Emergency telephone number:

24-Hour Health Emergency	:	000-800-100-7141

2. Hazard(s) identification

Classification according to GHS

Health Hazards

Acute toxicity (Inhalation - dust and mist)	Category 4
Serious Eye Damage/Eye Irritation	Category 2A

Environmental Hazards

Acute hazards to the aquatic environment	Category 2
Chronic hazards to the aquatic environment	Category 2

Label Elements

Hazard Symbol:

Signal Word: Warning

Hazard Statement:
Harmful if inhaled.
Causes serious eye irritation.
Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Avoid breathing dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear eye protection/face protection.

Response: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Collect spillage.

Disposal: Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards: None known.

3. Composition/information on ingredients

Chemical name:
Thioether

Substances

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol		928768-73-4	>60%

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

The exact concentration has been withheld as a trade secret.

4. First-aid measures

Description of necessary first-aid measures

General information:	Immediately remove contaminated clothing.
Inhalation:	fresh air supply, consult a doctor if feeling unwell.
Skin Contact:	In case of contact with skin wash off with soap and water. In case of discomfort: Supply with medical care.
Eye contact:	In case of contact with eyes rinse thoroughly with plenty of water. If symptoms persist, seek medical advice.
Ingestion:	Thoroughly clean the mouth with water In case of discomfort: Supply with medical care.
Personal Protection for First-aid Responders:	No data available.

Most important symptoms and effects, both acute and delayed

Symptoms:	Serious eye irritation
Hazards:	No data available.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.

5. Fire-fighting measures

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

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	foam, carbon dioxide, dry powder, water spray.
Unsuitable extinguishing media:	High volume water jet.
Special hazards arising from the substance or mixture:	In the event of fire the following can be released: - carbon dioxide, carbon monoxide Under certain conditions of combustion traces of other toxic substances cannot be excluded

Special protective equipment and precautions for fire-fighters

Special fire-fighting procedures:	No specific precautions.
Special protective equipment for fire-fighters:	Do not inhale explosion and/or combusition gases. Use self-contained breathing apparatus and wear protective suit

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment.

Accidental release measures:	No data available.
Methods and material for containment and cleaning up:	Pick up with absorbent material (e.g. sand, sawdust, general-purpose binder). Dispose of absorbed material in accordance with the regulations.
Environmental Precautions:	Do not allow to enter drains or waterways Prevent product from getting into subsoil/soil.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation):	No data available.
Safe handling advice:	Provide good ventilation of working area (local exhaust ventilation if necessary).Do not inhale gases/vapours/aerosols. Avoid contact with skin and eyes.
Contact avoidance measures:	No data available.

Storage

Safe storage conditions:	Keep container tightly closed in a cool, well-ventilated place.Do not store together with oxidizing agents.If the product has frozen or become thick due to storage in colder temperatures, warm to 30C and mix thoroughly before use.
Safe packaging materials:	No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Observe national threshold limit values.

Biological Limit Values

Observe national threshold limit values.

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information:	No data available.
Eye/face protection:	Safety glasses

Skin Protection

Hand Protection:	Additional Information: gloves made of chloroprene (CR, e.g. Neoprene), gloves made of nitril (NBR)

Other:	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.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	
Physical state:	liquid
Form:	liquid
Color:	Pale yellow
Odor:	Mild
Odor Threshold:	not measured
Freezing point:	46 °F/8 °C (EC Method A.1)
Boiling Point:	673 °F/356 °C (EC Method A.2)
Flammability:	not measured

Upper/lower limit on flammability or explosive limits

Explosive limit - upper:	not measured
Explosive limit - lower:	not measured
Flash Point:	365 °F/185 °C (ISO 3679 (seta closed))
Self Ignition Temperature:	489 °F/254 °C (EC Method A.15)
Decomposition Temperature:	not measured
pH:	6 - 7 (25 °C)
Viscosity	
Dynamic viscosity:	90 mPa.s (77 °F/25 °C)
Kinematic viscosity:	89 mm2/s (77 °F/25 °C, calculated)
Flow Time:	No data available.
Solubility(ies)	
Solubility in Water:	0,643 g/l (68 °F/20 °C, EC Method A.6)
Solubility (other):	not measured
Partition coefficient (n-octanol/water):	4,51 (EU Method A.8)
Vapor pressure:	< 0,1 hPa (77 °F/25 °C) (EC Method A.4)
Relative density:	not measured
Density:	1,01 g/cm3 (68 °F/20 °C) (EC Method A.3)
Bulk density:	No data available.
Relative vapor density:	not measured

Other information

Explosive properties:	not measured
Oxidizing properties:	not oxidizing

Minimum ignition temperature:	not measured
Metal Corrosion:	Not corrosive to metals
Evaporation Rate:	not measured
Surface tension	31,4 mN/m, 70 °F/21 °C

10. Stability and reactivity

Reactivity:	see section "Possibility of hazardous reactions".
Chemical Stability:	The product is stable under normal conditions.
Possibility of hazardous reactions:	No hazardous reactions with proper storage and handling
Conditions to avoid:	None with proper storage and handling.
Incompatible Materials:	Oxidizing agents.
Hazardous Decomposition Products:	None with proper storage and handling.

11. Toxicological information

Information on toxicological effects

Information on likely routes of exposure

Inhalation:	Information on effects are given below.
Skin Contact:	Information on effects are given below.
Eye contact:	Information on effects are given below.
Ingestion:	Information on effects are given below.

Acute toxicity (list all possible routes of exposure)

Oral

Product:	LD 50 (Rat, Female, Male): > 5.000 mg/kg (OECD 423)
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	LD 50 (Rat): > 5.000 mg/kg

Dermal

Product:	LD 50 (Rat, Female, Male): > 5.000 mg/kg (OECD 402)
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	LD 50 (Rat): > 5.000 mg/kg

Inhalation

Product:	LC 50 (Rat, 4 h): 4,73 mg/l Dusts, mists and fumes
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	LC 50 (Rat, 4 h): 4,73 mg/l Dusts, mists and fumes Vapour, No data available.

Repeated dose toxicity

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Skin Corrosion/Irritation Not irritating

Product:	OECD 404 (Rabbit): Not irritating;
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	OECD 404 (Rabbit): Not irritating

Serious Eye Damage/Eye Irritation Irritating.

Product:	OECD 405 (Rabbit): Irritating.;
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	OECD 405 (Rabbit): Irritating.

Respiratory or Skin Sensitization Not a skin sensitizer.

Product:	Maximization Test, OECD 406 (Guinea Pig): Not a skin sensitizer. The results of a test on guinea pigs showed this substance to be a weak skin sensitizer.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	Buehler Test, OECD 406 (Guinea Pig): Not a skin sensitizer. The results of a test on guinea pigs showed this substance to be a weak skin sensitizer.

Carcinogenicity

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Germ Cell Mutagenicity

No data available.

In vitro

Product:	Chromosomal aberration (OECD 473): negative; Bacterial reverse mutation assay (OECD 471): negative;
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	Chromosomal aberration (OECD 473): negative Bacterial reverse mutation assay (OECD 471): negative

In vivo

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Reproductive toxicity

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Specific Target Organ Toxicity - Single Exposure

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Aspiration Hazard

Product:	Not classified
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	Not classified

Information on health hazards

Other hazards

Product:	No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product:	LC 50 (Cyprinodon variegatus, 96 h): 8,6 mg/l LC 50 (Cyprinus carpio (Carp), 96 h): 5,4 mg/l
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	LC 50 (Cyprinodon variegatus (sheepshead minnow), 96 h): 8,6 mg/l LC 50 (Cyprinus carpio (Carp), 96 h): 5,4 mg/l

Aquatic Invertebrates

Product:	EC 50 (Daphnia magna, 48 h): 25 mg/l EC 50 (Acartia tonsa, 48 h): 9,8 mg/l salt water
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	EC 50 (Daphnia magna, 48 h): 25 mg/l EC 50 (Acartia tonsa, 48 h): 9,8 mg/l salt water

Toxicity to Aquatic Plants

Product:	EC 50 (Skeletonema costatum (marine diatom), 72 h): 2,4 mg/l (ISO 10253) EC 50 (Desmodesmus subspicatus (green algae), 72 h): 13 mg/l (OECD 201)
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	EC 50 (Skeletonema costatum (marine diatom), 72 h): 2,4 mg/l (ISO 10253) EC 50 (Desmodesmus subspicatus (green algae), 72 h): 13 mg/l (OECD 201)

Toxicity to microorganisms

Product:	EC 50 (activated sludge, 3 h): 210 mg/l (OECD 209) NOEC (activated sludge, 3 h): 80 mg/l (OECD 209)
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	EC 50 (activated sludge, 3 h): 210 mg/l (OECD 209) NOEC (activated sludge, 3 h): 80 mg/l (OECD 209)

Chronic hazards to the aquatic environment:

Fish

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Aquatic Invertebrates

Product:	LC 50 (Corophium volutator, 10 d): 49,4 mg/l
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	LC 50 (Corophium volutator, 10 d): 49,4 mg/l

Toxicity to Aquatic Plants

Product:	NOEC (Skeletonema costatum (marine diatom), 72 h): 1,8 mg/l (ISO 10253) NOEC (Desmodesmus subspicatus (green algae), 72 h): 4 mg/l (OECD 201)
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	NOEC (Skeletonema costatum (marine diatom), 72 h): 1,8 mg/l (ISO 10253) NOEC (Desmodesmus subspicatus (green algae), 72 h): 4 mg/l (OECD 201)

Toxicity to microorganisms

Product:	EC 50 (activated sludge, 3 h): 210 mg/l (OECD 209) NOEC (activated sludge, 3 h): 80 mg/l (OECD 209)
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	EC 50 (activated sludge, 3 h): 210 mg/l (OECD 209) NOEC (activated sludge, 3 h): 80 mg/l (OECD 209)

Persistence and Degradability

Biodegradation

Product:	70 % (28 d, OECD 306) The product is easily biodegradable. 70 % (28 d, OECD 301 F) The product is easily biodegradable., aerobic 70 % (41 d, OECD 301 B) The product is easily biodegradable., aerobic 40 % (28 d, OECD 301 F) The product is not biodegradable., aerobic
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	70 % (28 d, OECD 306) The product is easily biodegradable. 70 % (28 d, OECD 301 F) The product is easily biodegradable., aerobic 70 % (41 d, OECD 301 B) The product is easily biodegradable., aerobic 40 % (28 d, OECD 301 F) The product is not biodegradable., aerobic

BOD/COD Ratio

Product:	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product:	No data available.
Components:	

1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Partition Coefficient n-octanol / water (log Kow)

Product:	Log Kow: 4,51 20 °C (EU Method A.8)
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	Log Kow: 4,51 20 °C (EU Method A.8)

Mobility in soil:

Product	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Product	No data available.
Components:	
1-Octanol, reaction products with epichlorohydrin and 2-mercaptoethanol	No data available.

Other adverse effects:

Other hazards

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

13. Disposal considerations

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.

14. Transport information

International Regulations

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (1-Octanol reaction products with epichlorohydrin and 2-mercaptoethanol)
Class	:	9
Packing group	:	III
Labels	:	9MI

Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
Environmentally hazardous	:	yes

IMDG-Code

UN number or ID number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1-Octanol reaction products with epichlorohydrin and 2-mercaptoethanol)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

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.

15. Regulatory information

16.Other information, including date of preparation or last revision

Issue Date: 26.03.2019

Version #: 1.2

Further Information: No data available.

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

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