

SAFETY DATA SHEET

 accordance with Annex II of Regulation (EC) No 1907/2006 and
 its amendment(s)

Product: EKALAND™ DTDM PD

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SDS No.: 100020-100 (Version 6.0)

Date 31.10.2019 (Cancel and replace : 27.08.2019)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING
1.1. Identification of the product

Substance name: EKALAND™ DTDM PD
 REACH Registration Number: 01-2119541817-32-0000
 EC Nr: 203-103-0
 CAS-No.: 103-34-4

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture :

Sector of use :	Product category :
Manufacture of General Rubber Goods SU11: Manufacture of rubber products	PC0: Cross-linking agent

1.3. Details of the supplier of the safety data sheet

Supplier MLPC International
 209, Avenue Charles Despiau
 F-40370 RION-DES-LANDES, FRANCE
 Telephone: + 33 (0) 5 58 57 02 00
 E-mail address: <http://www.mlpc-intl.com>
fds@mlpc-intl.com

E-mail address : Exposure scenario reachsubstance@mlpc-intl.com

1.4. Emergency telephone number

+1-703-741-5970 CHEMTREC international emergency phone number (ARKEMA CCN830055)

2. HAZARDS IDENTIFICATION
2.1. Classification of the substance or mixture
Classification (REGULATION (EC) No 1272/2008):

Skin sensitisation, 1A, H317
 Specific target organ toxicity - single exposure, 3, H335
 Chronic aquatic toxicity, 2, H411

Additional information:

For the full text of the H, EUH-phrases mentioned in this Section, see Section 16.

2.2. Label elements
Label elements (REGULATION (EC) No 1272/2008):
Hazardous components which must be listed on the label:

CAS-No. : 103-34-4

Di(morpholin-4-yl) disulphide

 Hazard
 pictograms:


Signal word:

Warning

Hazard statements:

H317 : May cause an allergic skin reaction.
 H335 : May cause respiratory irritation.
 H411 : Toxic to aquatic life with long lasting effects.

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Precautionary statements:

Prevention:

P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P280 : Wear eye protection and face protection.

P273 : Avoid release to the environment.

Response:

P333 + P313 : If skin irritation or rash occurs: Get medical advice/ attention.

Storage:

P403 + P233 : Store in a well-ventilated place. Keep container tightly closed.

Disposal:

P501 : Dispose of contents and container to an approved incineration plant.

Additional information: Rubber accelerator

2.3. Other hazards : None.

Other:

Results of PBT and vPvB assessment : According to REACH regulation, annex XIII, the substance does not meet PBT and vPvB criteria.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical name ¹	EC-No.	CAS-No.	Concentration	Classification REGULATION (EC) No 1272/2008
Di(morpholin-4-yl) disulphide	203-103-0	103-34-4	100 %	Skin Sens.1A; H317 STOT SE3 (Inhalation); H335 Aquatic Chronic2; H411

¹: See chapter 14 for Proper Shipping Name

4. FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

General advice:

Take off immediately all contaminated clothing.

Inhalation:

Move to fresh air. Consult a physician.

Skin contact:

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Eye contact:

Wash well-open eyes immediately, abundantly and thoroughly with water. Consult an ophthalmologist.

Ingestion:

Call a physician immediately. Do not induce vomiting without medical advice. Rinse mouth.

Protection of first-aiders:

If entering a saturated atmosphere, wear a self contained breathing apparatus.

4.2. Most important symptoms/effects, acute and delayed: No data available.

4.3. Indication of immediate medical attention and special treatment needed, if necessary: No data available.

5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media:

Water spray, Foam, Dry powder

Unsuitable extinguishing media:

All other extinguishants

5.2. Special hazards arising from the substance or mixture:

Thermal decomposition gives : Temperature exceeding 280 °C:

Sulphur oxides, Nitrogen oxides (NOx)

5.3. Advice for firefighters:**Specific methods:**

Remove all sources of ignition. Suppress gases, fumes and/or dust with water spray jet.

Special protective actions for fire-fighters:

Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures:**

Avoid contact with skin and eyes and inhalation of dust.

6.2. Environmental precautions:

Do not let product enter drains. Do not contaminate surface water.

6.3. Methods and materials for containment and cleaning up:**Recovery:**

Shovel or sweep up. Recover the product and place in a dry labelled container.

Elimination:

Destroy the product by incineration (in accordance with local and national regulations).

6.4. Reference to other sections: None.**7. HANDLING AND STORAGE****7.1. Precautions for safe handling:****Technical measures/Precautions:**

Storage and handling precautions applicable to products: Dust forming. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Provide water supplies, ocular fountains and showers near the point of use.

Safe handling advice:

Avoid the formation and deposition of dust. Provide for appropriate exhaust ventilation and dust collection at machinery. Provide showers, eye-baths. Wear a dust mask and safety glasses/goggles if necessary.

Hygiene measures:

General industrial hygiene practice. Avoid contact with skin, eyes and clothing. Avoid breathing dust. Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:

Keep in a well-ventilated place. Keep in a dry place. Store protected from moisture.

Incompatible products:

Strong acids Oxidizing agents

Packaging material:

Recommended: Paper bags, Big bags.

Paper bags lined with polyethylene

7.3. Specific end use(s): None.**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1. Control parameters:****Exposure Limit Values (dust)**

Source	Date	Value type	Value (ppm)	Value (mg/m3)	Remarks
ACGIH (US)	02 2012	TWA	–	10	Inhalable particles.
ACGIH (US)	02 2012	TWA	–	3	Respirable particles.

Exposure Limit Values

Not relevant

Derived No Effect Level (DNEL):

End Use	Inhalation	Ingestion	Skin contact
Workers	0,07 mg/m3 (LT, SE)		0,83 mg/kg (LT, SE)
Consumers	0,01 mg/m3 (LT, SE)	0,42 mg/kg (LT, SE)	0,42 mg/kg (LT, SE)

LE : Local effects, **SE** : Systemic effects, **LT** : Long term, **ST** : Short term

Predicted No Effect Concentration:

Compartment:	Value:
Fresh water	0,0037 mg/l
Marine water	0,00037 mg/l
Water (Intermittent release)	0,037 mg/l
Effects on waste water treatment plants	7,59 mg/l
Soil	0,00441 mg/kg dw
Marine sediment	0,0032 mg/kg dw
Fresh water sediment	0,032 mg/kg dw
Oral (Secondary Poisoning)	0,76 mg/kg food

8.2. Exposure controls:

General protective measures: Ensure sufficient air exchange and/or exhaust in work areas

Personal protective equipment:

Respiratory protection: Effective dust mask
 Hand protection: Impervious gloves
 Eye/face protection: Tightly fitting safety goggles
 Skin and body protection: At the workplace : Protective suit.

Environmental exposure controls: See chapter 6

9. PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties****Appearance:**

Physical state (20°C): solid
Form: powder
Colour: white
Odour: Characteristic and slight
Olfactory threshold: No data available.
pH: Not applicable
Melting point/range : 125 °C (OECD Test Guideline 102)
Boiling point/boiling range: No data available.
Flash point: Not applicable
Evaporation rate: No data available.
Flammability (solid, gas):
 Flammability: Non flammable product (Standard A10)
 Lower flammable limit : No data available
Vapour pressure: < 0,004 Pa , at 25 °C (estimation)
Vapour density: No data available.
Density: 1,36 g/cm³ , at 20 °C
Bulk density: 452 kg/m³ , at 20 °C
Water solubility: 0,215 g/l Hydrolyses slowly. at 20 °C (OECD Test Guideline 105)
Partition coefficient: n-octanol/water: log Kow : 2,67 , at 22 °C (OECD Test Guideline 117)
Auto-ignition temperature: Not applicable
Decomposition temperature: 216 °C
Viscosity: No data available.
Explosive properties:
 Explosivity: Not explosive, Not relevant (due to its chemical structure)

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Oxidizing properties: No data available.

9.2. Other data:

Solubility in other solvents: Chloroform
Surface tension: 58,2 mN/m at 23 °C
pKA: None.
Molecular weight: 236,35 g/mol

10. STABILITY AND REACTIVITY

10.1. Reactivity: No data available.

10.2. Chemical stability:
Product stable in the absence of moisture

10.3. Possibility of hazardous reactions: No data available.

10.4. Conditions to avoid:
Store protected from moisture and heat. Protect from light. Keep away from direct sunlight.

10.5. Incompatible materials to avoid:
Strong acids and oxidizing agents

10.6. Hazardous decomposition products:

Thermal decomposition:
Decomposition temperature: 216 °C
Thermal decomposition gives : Nitrogen oxides (NOx)
Nitrosamine

11. TOXICOLOGICAL INFORMATION

All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

11.1. Information on toxicological effects:

Acute toxicity:

Inhalation: No data available.

Ingestion: **Slightly harmful by ingestion**
• In animals : LD50/Rat: 5,6 g/kg (Method: OECD Test Guideline 401)

Dermal: **Slightly harmful in contact with skin**
• In animals : No mortality/Rat: 2 g/kg (Method: OECD Test Guideline 402)

Local effects (Corrosion / Irritation / Serious eye damage):

Skin contact: **Non irritating to skin**
• In animals : No skin irritation (after occlusive contact, Rabbit)

Eye contact: **Slightly irritating to eyes.**
• In animals : Mild eye irritation (Rabbit)

Respiratory or skin sensitisation:

Inhalation: No data available.

Skin contact: **May cause an allergic skin reaction.**
• In animals : Strong sensitizing effects by skin contact. (Method: Buehler method, Guinea pig)

CMR effects :

Mutagenicity: **Results from tests do not lead to considering the product as genotoxic**

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In vitro	Ames test in vitro: Inactive (Method: OECD Test Guideline 471) In vitro mammalian cell gene mutation test: Inactive
In vivo	Chromosome aberration test in vivo: Inactive (Method: OECD Test Guideline 475)
Carcinogenicity:	Available experimental data indicates no particular problems for man. (in the usual conditions of use)
Reproductive toxicity:	
Fertility:	
• In animals :	Repeated administration: Absence of toxic effects upon the reproductive system NOAEL (Parental toxicity) : 8,38 mg/m ³ (Method: OECD Test Guideline 413, Rat, By inhalation)
Foetal development:	Based on the available data, the substance is not suspected of having developmental toxicity potential.
• In animals :	Absence of congenital malformations and embryotoxic effects at non-toxic doses for the mothers NOAEL (Developmental Toxicity) : 250 mg/kg bw/day NOAEL (Maternal Toxicity) : 250 mg/kg bw/day (Method: OECD Test Guideline 414, Rat, By oral route)
<u>Specific target organ toxicity :</u>	
<u>Single exposure :</u>	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. Exposure routes : Inhalation Target Organs : Respiratory Tract
Inhalation:	
• In animals :	May cause respiratory irritation. Irritating to respiratory system. , Rat
<u>Repeated exposure:</u>	
• In animals :	The substance or mixture is not classified as specific target organ toxicant, repeated exposure. By inhalation: (Method: OECD Test Guideline 413, Rat, 3 months) Local irritation of the respiratory system NOAEL= 0,507mg/m ³ No specific toxic effects NOAEL= 8,38mg/m ³
<u>Aspiration hazard:</u>	Not applicable

12. ECOLOGICAL INFORMATION

Ecotoxicology Assessment:	All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment. Acute aquatic toxicity : Toxic to aquatic life. Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.
12.1. <u>Acute toxicity :</u>	
Fish:	Toxic to fish. LC50, 96 h (Oncorhynchus mykiss (rainbow trout)) : 3,7 mg/l (Method: OECD Test Guideline 203)
Aquatic invertebrates:	Toxic to daphnia. EC50, 48 h (Daphnia magna (Water flea)) : 4,5 mg/l
Aquatic plants:	Harmful to algae. EC50, 96 h (Selenastrum capricornutum) : 29 mg/l
Microorganisms:	EC50, 3 h (Activated sludge) : 759 mg/l (Method: OECD Test Guideline 209, Respiration inhibition of activated sludge)
12.2. <u>Persistence and degradability :</u>	
Stability in water:	: Half-life: < 1 h at 25 °C and pH 4 Method: OECD Test Guideline 111 : Half-life: 3,6 h at 25 °C and pH 7 Method: OECD Test Guideline 111 : Half-life: 21 h at 25 °C and pH 9 Method: OECD Test Guideline 111

Biodegradation (In water): **Not readily biodegradable. Inherently biodegradable.**
Not readily biodegradable.: 76 % after 49 d (Method: OECD Test Guideline 301 B)

12.3. Bioaccumulative potential :

Bioaccumulation: **Bioaccumulation is unlikely.**
Partition coefficient: n-octanol/water: log Kow : 2,67 , at 22 °C (Method: OECD Test Guideline 117)

12.4. Mobility in soil - Distribution among environmental compartments:

Vapor pressure: < 0,004 Pa, 25 °C, (Method: estimation)
Surface tension: 58,2 mN/m 23 °C

12.5. Results of PBT and vPvB assessment :

According to REACH regulation, annex XIII, the substance does not meet PBT and vPvB criteria.

12.6. Other adverse effects: None known.

13. DISPOSAL CONSIDERATIONS**13.1. Waste treatment:**

Disposal of product: Destroy the product by incineration (in accordance with local and national regulations).
Disposal of packaging: Destroy packaging by incineration at an approved waste disposal site (in accordance with local and national regulations).

14. TRANSPORT INFORMATION

Regulation	14.1. UN number	14.2. UN proper shipping name	14.3. Class ^{s*}	Label	14.4. PG [*]	14.5. Environmental hazards	14.6. Special precautions for user
ADR	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (DI(MORPHOLIN-4-YL) DISULPHIDE)	9	9	III	yes	
ADN	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (DI(MORPHOLIN-4-YL) DISULPHIDE)	9	9	III	yes	
RID	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (DI(MORPHOLIN-4-YL) DISULPHIDE)	9	9	III	yes	
IATA Cargo	3077	Environmentally hazardous substance, solid, n.o.s. (DI(MORPHOLIN-4-YL) DISULPHIDE)	9	9MI	III	yes	
IATA Passenger	3077	Environmentally hazardous substance, solid, n.o.s. (DI(MORPHOLIN-4-YL) DISULPHIDE)	9	9MI	III	yes	
IMDG	3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (DI(MORPHOLIN-4-YL) DISULPHIDE)	9	9	III	Marine pollutant	EmS Number: F-A, S-F Mark: MP

*Description: 14.3. Transport hazard class(es)
14.4. Packing group

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

15. REGULATORY INFORMATION

Safety data sheets: accordance with Annex II of Regulation (EC) No 1907/2006 and its amendment(s)

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

15.2. Chemical safety assessment: None.

INVENTORIES:

EINECS:	Conforms to
TSCA:	Conforms to
DSL:	All components of this product are on the Canadian DSL
IECSC (CN):	Conforms to
ENCS (JP):	Conforms to
ISHL (JP):	Conforms to
KECI (KR):	Conforms to
PICCS (PH):	Conforms to
AICS:	Conforms to
NZIOC:	Conforms to

16. OTHER INFORMATION
Full text of H, EUH-phrases referred to under sections 2 and 3

H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Update:

Safety datasheet sections which have been updated:		Type:
1	1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING, Emergency telephone number, Industrial use	Revisions
Exposure scenario	one or more exposure scenario have been changed: see dates and versions	Revisions, Deletions

Thesaurus:

NOAEL : No Observed Adverse Effect Level (NOAEL)
 LOAEL : Lowest Observed Adverse Effect Level (LOAEL)
 bw : Body weight
 food : oral feed
 dw : Dry weight
 vPvB : very Persistent and very Bioaccumulative
 PBT : Persistent, Bioaccumulative and Toxic

This information applies to the PRODUCT AS SUCH and conforming to specifications of ARKEMA. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive. It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).