

Safety Data Sheet

D-lactide

According to the MOI Notification B.E. 2555 (2012)
Issue date: 1/23/2023 Version: 1.0

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

1.1. Product identifier

Product form	: Substance
Name	: D-lactide
Trade name	: Lumilact® D Polymer Grade
IUPAC name	: (3R,6R)-3,6-dimethyl-1,4-dioxane-2,5-dione
CAS-No.	: 13076-17-0
Formula	: C ₈ H ₈ O ₄

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

Recommended use	: Polymers
Restrictions on use	: No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

TotalEnergies Corbion BV
70 Stadhuisplein Gorinchem 4203 NS The Netherlands
T +31 183 695 695 - F +31 183 695 600
pla@totalenergies-corbion.com

1.4. Emergency telephone number

Emergency number	: +44 1865 407333 (CareChem24) Operating hours 24 hours, 7 days a week
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to MOI notification B.E. 2555 (2012)

Serious eye damage/eye irritation, Category 2 H319

2.2. Label elements

Labelling according to MOI notification B.E. 2555 (2012)

Hazard pictograms (GHS TH)



Signal word (GHS TH)

: Warning

Hazard statements (GHS TH)

: H319 - Causes serious eye irritation

Precautionary statements (GHS TH)

: P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
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.

2.3. Other hazards

Other hazards which do not result in classification : Warning, Potential dust explosion hazard, Dust may form explosive mixture in air

Safety Data Sheet

D-lactide

According to the MOI Notification B.E. 2555 (2012)

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : D-lactide
CAS-No. : 13076-17-0
EC-No. : 603-436-5

Name	Product identifier	Conc. (% w/w)	Classification according to MOI notification B.E. 2555 (2012)
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)-	CAS-No.: 13076-17-0	> 98	Eye Irrit. 2, H319

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Get medical advice/attention if you feel unwell.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : 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.
First-aid measures after ingestion : Rinse mouth. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : Dust from this product may cause irritation to the respiratory tract.
Symptoms/effects after eye contact : Burning sensation. Itching. Redness. Tears.

4.3. Indication of any immediate medical attention and special treatment needed

Other medical advice or treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.
Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Explosion hazard : Dust can form an explosive mixture with air.
General measures : No flames, no sparks. Eliminate all sources of ignition.
Hazardous decomposition products in case of fire : Under fire conditions, hazardous fumes will be present: Carbon dioxide, Carbon monoxide.

5.3. Advice for firefighters

Firefighting instructions : Evacuate personnel to a safe area. Use water spray or fog for cooling exposed containers. Move containers from fire area if it can be done without personal risk. Prevent fire fighting water from entering the environment.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Safety Data Sheet

D-lactide

According to the MOI Notification B.E. 2555 (2012)

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : No flames, no sparks. Eliminate all sources of ignition.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Avoid dust formation. Do not touch or walk on the spilled product. Evacuate unnecessary personnel. Do not breathe dust.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop leak without risks if possible. Avoid creating or spreading dust.
Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal. Avoid dust formation. Use non-sparking tools. Flush contaminated areas with plenty of water. Never return spills in original containers for possible later re-use. Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Dust may form flammable and explosive mixture with air.
Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment. Handle under inert gas. Protect from moisture.
Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes and clothing. Always wash hands after handling the product. Use good housekeeping practices during storage, transfer, handling, to avoid excessive dust accumulation. Wash contaminated clothing before reuse. Do not breathe dust.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed in a cool, well-ventilated place. Protect from moisture.
Storage area : Store according to local legislation.
Incompatible materials : Water, humidity.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

Exposure limit values for the other components

No additional information available

8.2. Exposure controls

No additional information available

8.3. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment.

Safety Data Sheet

D-lactide

According to the MOI Notification B.E. 2555 (2012)

8.4. Personal protective equipment

Hand protection : Protective gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Protective gloves	Butyl rubber	6 (> 480 minutes)	0.5		EN 374

Eye protection : Safety glasses with side shields

Type	Field of application	Characteristics	Standard
Safety glasses with side shields	Dust		EN 166

Skin and body protection : Wear suitable protective clothing

Type	Standard
Long sleeved protective clothing	

Respiratory protection : No respiratory protection needed under normal use conditions. Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

Device	Filter type	Condition	Standard
Dust mask	(FFP2)	Dust protection	EN 149
Half-face mask (DIN EN 140)	Type A/P2	Vapour protection	EN 140



Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

Physical state	: Solid
Appearance	: Powder. Flakes.
Colour	: White
Odour	: Odourless
Odour threshold	: No additional information available
pH	: No additional information available
Melting point, Freezing point	: Melting point: 97 °C Freezing point: Not applicable
Boiling point	: 266 °C
Flash point	: 150 °C
Auto-ignition temperature	: Not applicable
Flammability	: Non flammable.
Vapour pressure	: No additional information available
Evaporation rate	: No additional information available
Explosive limits	: Not applicable
Explosive properties	: Dust explosion hazard in air.
Minimum ignition energy	: No data available
Solubility	: No additional information available
Density	: Density: 1.33 g/cm³
Relative density	: No additional information available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Dust deflagration index	: 188 bar·m/s
Dust explosion category	: St 1 - Weak explosion

Safety Data Sheet

D-lactide

According to the MOI Notification B.E. 2555 (2012)

SECTION 10: Stability and reactivity

Chemical stability	: Stable under normal conditions.
Conditions to avoid	: Protect from moisture. Avoid raising powdered materials into airborne dust, creating an explosion hazard.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Incompatible materials	: Water, humidity.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use. When mixed with air and exposed to an ignition source, dust may burn in the open air or explode if confined.
Reactivity	: The product is non-reactive under normal conditions of use, storage and transport.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in MOI notification B.E. 2555 (2012)

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)- (13076-17-0)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 423 method)
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402 method)
LC50 Inhalation - Rat (Dust/Mist)	> 7.94 mg/l/4h (OECD 403 method)

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

D-lactide (13076-17-0)	
Viscosity, kinematic	Not applicable
Density	1.33 g/cm ³

1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)- (13076-17-0)	
Animal studies and expert judgment for classification	False

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)- (13076-17-0)	
EC50 - Crustacea [1]	130 mg/l (OECD 202 method)

Safety Data Sheet

D-lactide

According to the MOI Notification B.E. 2555 (2012)

ErC50 algae	2800 mg/l
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12.2. Persistence and degradability

D-lactide (13076-17-0)	
Persistence and degradability	No additional information available
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)- (13076-17-0)	
Persistence and degradability	Readily biodegradable.

12.3. Bioaccumulative potential

1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)- (13076-17-0)	
Partition coefficient n-octanol/water (Log Pow)	0.4 (OECD 117 method)
Bioaccumulative potential	Bioaccumulation unlikely.

12.4. Mobility in soil

D-lactide (13076-17-0)	
Mobility in soil	No additional information available
1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)- (13076-17-0)	
Partition coefficient n-octanol/water (Log Pow)	0.4 (OECD 117 method)

12.5. Other adverse effects

Ozone	: Not classified
Other adverse effects	: No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Do not re-use empty containers without proper cleaning or reconditioning.

SECTION 14: Transport information

IMDG	IATA	UNRTDG
14.1. UN number		
Not regulated for transport		
Not applicable	Not applicable	Not applicable
14.2. UN proper shipping name		
Not applicable	Not applicable	Not applicable
14.3. Transport hazard class(es)		
Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable

Safety Data Sheet

D-lactide

According to the MOI Notification B.E. 2555 (2012)

IMDG	IATA	UNRTDG
14.4. Packing group		
Not applicable	Not applicable	Not applicable
14.5. Environmental hazards		
Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available		

14.6. Special precautions for user

UN RTDG

No data available

IMDG

No data available

IATA

No data available

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

Not applicable

SECTION 15: Regulatory information

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

No additional information available

15.2. International agreements

Regional legislation

Australia AICS	: No
Canada DSL	: No
Canada NDSL	: Yes
China IECSC	: No
EU EINECS	: No
EU NLP	: No
Korea ECL	: No
US TSCA Active	: Yes
US TSCA Inactive	: No

SECTION 16: Other information

Version	: 1.0
Issue date	: 23/01/2023

Abbreviations and acronyms	: CAS-No. - Chemical Abstract Service number IATA - International Air Transport Association IMDG - International Maritime Dangerous Goods LC50 - Median lethal concentration LD50 - Median lethal dose N.O.S. - Not Otherwise Specified NOAEL - No-Observed Adverse Effect Level NOEC - No-Observed Effect Concentration OECD - Organisation for Economic Co-operation and Development OEL - Occupational Exposure Limit
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Safety Data Sheet

D-lactide

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Training advice

SDS - Safety Data Sheet
: Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure. Training staff on good practice.

Full text of H-statements:

Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H319	Causes serious eye irritation

TotalEnergies Corbion Thailand (MOI Notification B.E. 2555 (Ministry of Interior))

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