

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 04/06/2020 Revision date: 27/08/2020 Supersedes: 04/06/2020

DLM-11102



Version: 2.0

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

1.1. Product identifier

Product form : Substance

Substance name : LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL-D25; DIMETHYLAMINE-D6;

97%)

EC-No. : 216-700-6 (Unlabeled) CAS-No. : 1643-20-5 (Unlabeled)

Product code : DLM-11102 Formula : C14D31NO

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

1.2.1. Relevant identified uses

Main use category : Professional use

Industrial/Professional use spec : For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.

50 Frontage Road Andover, MA 01810

USA

USA: 1-800-322-1174 Int: 1-978-749-8000 <u>cilsales@isotope.com</u> www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours) International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302 Skin Irrit. 2 H315 Eye Dam. 1 H318 Aquatic Acute 1 H400 Aquatic Chronic 2 H411

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R22 Xi; R41 Xi; R38 N; R51/53 N; R50

Full text of R-phrases: see section 16

GHS-US classification

Acute Tox. 4 (Oral) H302 Skin Irrit. 2 H315 Eye Dam. 1 H318 Aquatic Acute 1 H400 Aquatic Chronic 2 H411

Full text of H statements : see section 16

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Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS05





Signal word (CLP) : Danger

Hazard statements (CLP) : H302 - Harmful if swallowed H315 - Causes skin irritation

H318 - Causes serious eye damage H411 - Toxic to aquatic life with long lasting effects

H411 - TOXIC to aquatic line with long lasting effects

Precautionary statements (CLP) : P264 - Wash hands, forearms and face thoroughly after handling. 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. P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.

P302+P352 - IF ON SKIN: Wash with plenty of water.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER or doctor.

GHS-US labeling

Hazard pictograms (GHS-US)

Precautionary statements (GHS-US)







Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H302 - Harmful if swallowed

H315 - Causes skin irritation

H318 - Causes serious eye damage

H411 - Toxic to aquatic life with long lasting effects

P264 - Wash hands, forearms and face thoroughly after handling.
 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.

P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell

P302+P352 - If on skin: Wash with plenty of water

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing P310 - Immediately call a poison center or doctor

P321 - Specific treatment (see supplemental first aid instruction on this label)

P330 - Rinse mouth.

P332+P313 - If skin irritation occurs: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse.

P391 - Collect spillage.

P501 - Dispose of contents/container to hazardous or special waste collection point, in

accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

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Name	Product identifier	%	Classification according to Directive 67/548/EEC
LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL- D25; DIMETHYLAMINE-D6; 97%)	(CAS-No.) 1643-20-5 (Unlabeled) (EC-No.) 216-700-6 (Unlabeled) (EC Index-No.)	100	Xn; R22 Xi; R41 Xi; R38 N; R51/53 N; R50
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL- D25; DIMETHYLAMINE-D6; 97%)	(CAS-No.) 1643-20-5 (Unlabeled) (EC-No.) 216-700-6 (Unlabeled) (EC Index-No.)	100	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 2. H411

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	GHS-US classification
LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL- D25; DIMETHYLAMINE-D6; 97%) (Main constituent)	(CAS-No.) 1643-20-5 (Unlabeled)	100	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general

: If you feel unwell, seek medical advice (show the label where possible). Evacuate danger area.

First-aid measures after inhalation

: When symptoms occur: go into open air and ventilate suspected area. If not breathing give artificial respiration. Get medical advice/attention.

First-aid measures after skin contact

: Wash with plenty of soap and water. and soap. Get immediate medical advice/attention.

First-aid measures after eye contact

: Rinse cautiously with water for several minutes.

First-aid measures after ingestion

: Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get

medical advice/attention.

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

Symptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory irritation.

Symptoms/effects after skin contact
Symptoms/effects after eye contact

: Causes skin irritation.

: Causes serious eye damage.

Symptoms/effects after ingestion

: Harmful if swallowed.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO2).

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions

: Fight fire with normal precautions from a reasonable distance. Wear a self contained breathing apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting

: Do not enter fire area without proper protective equipment, including respiratory protection. Wear recommended personal protective equipment.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures

: Use personal protective equipment as required. Avoid breathing vapors, mist, gas. Avoid dust formation. Evacuate unnecessary personnel. Ensure adequate air ventilation.

6.1.2. For emergency responders

Protective equipment

: Do not attempt to take action without suitable protective equipment. For further information

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.

Methods for cleaning up : This material and its container must be disposed of in a safe way, and as per local legislation.

refer to section 8: "Exposure controls/personal protection".

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

: Provide adequate ventilation to minimize dust and/or vapor concentrations.

Hygiene measures

: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Store in a well-ventilated place. Keep container tightly closed.

Storage conditions : Store in freezer (-20°C). Protect from light.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls

: Wash hands and other exposed areas with mild soap and water before eating, drinking or

smoking and when leaving work.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.









Materials for protective clothing

: Wear suitable protective clothing and gloves.

Hand protection

: Wear suitable protective clothing and gloves.

Eye protection

: Wear eye protection. Chemical goggles or face shield with safety glasses.

Skin and body protection

: Wear suitable protective clothing, gloves and eye/face protection.

Respiratory protection

: In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.

Environmental exposure controls

: Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Appearance : Powde

Molecular mass : 260.43 g/mol (Labeled)

Color : White

Odor : No data available
Odor threshold : No data available

pH : 8.0 - 9.0 at 22.9 g/l at 25 °C (77 °F)

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Relative evaporation rate (butyl acetate=1) : No data available

Melting point : 132 - 133 °C (270 - 271 °F)

Freezing point : No data available No data available Boiling point No data available Flash point : No data available Auto-ignition temperature : No data available Decomposition temperature : No data available Flammability (solid, gas) Vapor pressure No data available : No data available Relative vapor density at 20 °C

Relative density : 0.996 g/cm30.983 g/cm3 at 23 °C (73 °F)

Solubility : Water: 409.5 g/l - soluble

Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information

Additional information : Surface tension 31.18 mN/m at 25 °C (77 °F) - OECD Test Guideline 115

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO2). Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL-D25; DIMETHYLAMINE-D6; 97%) (1643-20-5 (Unlabeled))	
LD50 oral rat	1064 mg/kg (OECD Test Guideline 401)
ATE CLP (oral)	500.000 mg/kg body weight

Skin corrosion/irritation : Skin - Rabbit Result: Irritating to skin. (OECD Test Guideline 404)

PH: 8.0 - 9.0 at 22.9 g/l at 25 °C (77 °F)

Serious eye damage/irritation : Eyes - Rabbit Result: Risk of serious damage to eyes. (OECD Test Guideline 405)

PH: 8.0 - 9.0 at 22.9 g/l at 25 °C (77 °F)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : In vitro assay In vitro mammalian cell gene mutation test Chinese hamster lung cells Result:

negative

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

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Specific target organ toxicity - repeated

exposure

: Not classified : Not classified

Potential Adverse human health effects and

symptoms

Aspiration hazard

: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be

construed as guaranteeing any specific property of the product.

Symptoms/effects after inhalation : May be harmful if inhaled. May cause respiratory irritation.

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL-D25; DIMETHYLAMINE-D6; 97%) (1643-20-5 (Unlabeled))	
LC50 fish 1	semi-static test LC50 - Danio rerio (zebra fish) - 31.8 mg/l - 96 h (OECD Test Guideline 203) flow-through test NOEC - Pimephales promelas (fathead minnow) - 0.495 mg/l - 15 d
EC50 other aquatic organisms 1	static test EC50 - Daphnia magna (Water flea) - 3.9 mg/l - 48 h (OECD Test Guideline 202)
ErC50 (algae)	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 0.2 mg/l - 72 h (OECD Test Guideline 201)
ErC50 (other aquatic plants)	0.146 mg/l - Pseudokirchneriella subcapitata (green algae)
NOEC (acute)	0.015 mg/l - Pseudokirchneriella subcapitata (green algae)

12.2. Persistence and degradability

LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL-D25; DIMETHYLAMINE-D6; 97%) (1643-20-5 (Unlabeled))	
Biodegradation	95.2 % - Readily biodegradable. aerobic - Exposure time 28 d (OECD Test Guideline 301C)

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects

: Environmental precautions. Avoid release to the environment. Disposal must be done according to official regulations.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)

: Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

Product/Packaging disposal recommendations

: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No.(DOT) : 3077 DOT NA no. UN3077

14.2. UN proper shipping name

Proper Shipping Name (DOT)

: Environmentally hazardous substances, solid, n.o.s.

Class (DOT) : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

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Hazard labels (DOT)

: 9 - Class 9 (Miscellaneous dangerous materials)



III - Minor Danger

DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT)

DOT Special Provisions (49 CFR 172.102)

8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.

146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.

335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s," UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging.

A112 - Notwithstanding the quantity limits shown in Column (9A) and (9B) for this entry, the following IBCs are authorized for transportation aboard passenger and cargo-only aircraft. Each IBC may not exceed a maximum net quantity of 1,000 kg:

a. Metal: 11A, 11B, 11N, 21A, 21B and 21N

b. Rigid plastics: 11H1, 11H2, 21H1 and 21H2

c. Composite with plastic inner receptacle: 11HZ1, 11HZ2, 21HZ1 and 21HZ2

d. Fiberboard: 11G

e. Wooden: 11C, 11D and 11F (with inner liners)

f. Flexible: 13H2, 13H3, 13H4, 13H5, 13L2, 13L3, 13L4, 13M1 and 13M2 (flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner).

B54 - Open-top, sift-proof rail cars are also authorized.

IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2)

IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.

N20 - A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle. T1 - 1.5 178.274(d)(2) Normal...... 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) 155 DOT Packaging Non Bulk (49 CFR 173.xxx) : 213 DOT Packaging Bulk (49 CFR 173.xxx) : 240

Additional information

Emergency Response Guide (ERG) Number

Other information : No supplementary information available. Special transport precautions : DOT/IMDG/IATA: Not dangerous goods.

Overland transport

Packing group (ADR) : 111

Class (ADR) : 9 - Miscellaneous dangerous substances and articles

Hazard identification number (Kemler No.) : 90 Classification code (ADR) : M7

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Hazard labels (ADR) : 9 - Miscellaneous dangerous substances and articles



Orange plates :

90

Tunnel restriction code (ADR) : E
Limited quantities (ADR) 5kg
EAC : 2Z
Excepted quantities (ADR) : E1

Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a

passenger vessel.

MFAG-No : 171

Air transport

DOT Quantity Limitations Passenger aircraft/rail : No limit

(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : No limit

CFR 175.75)

Civil Aeronautics Law : Miscellaneous dangerous substances & articles

14.4. Environmental hazards

Dangerous for the environment



Other information : No supplementary information available.

14.5. Special precautions for user

Special transport precautions : DOT/IMDG/IATA: Not dangerous goods.

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

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL-D25; DIMETHYLAMINE-D6; 97%) (1643-20-5 (Unlabeled))	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

15.2. International regulations

CANADA

LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL-D25; DIMETHYLAMINE-D6; 97%) (1643-20-5 (Unlabeled)) Not listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

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15.3. US State regulations

LAURYL-N, N-DIMETHYLAMINE-N-OXIDE (LDAO) (LAURYL-D25; DIMETHYLAMINE-D6; 97%)(1643-20-5 (Unlabeled))	
U.S California - Proposition 65 - Carcinogens List	No
U.S California - Proposition 65 - Developmental Toxicity	No
U.S California - Proposition 65 - Reproductive Toxicity - Female	No
U.S California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S Pennsylvania - RTK (Right to Know) List U.S New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Other information

: This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	Skin corrosion/irritation Category 2
H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects
R22	Harmful if swallowed
R38	Irritating to skin
R41	Risk of serious damage to eyes
R50	Very toxic to aquatic organisms
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
N	Dangerous for the environment
Xi	Irritant
Xn	Harmful

NFPA health hazard : 2 - Ma

: 2 - Materials that, under emergency conditions, can cause

temporary incapacitation or residual injury.

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as

concrete, stone, and sand.

: 0 - Material that in themselves are normally stable, even

under fire conditions.



Hazard Rating

NFPA fire hazard

NFPA reactivity

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 0 Minimal Hazard
Physical : 0 Minimal Hazard

CIL Substance SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

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