SAFETY DATA SHEET

SPECIALTY ELECTRONIC MATERIALS UK LIMITED

Safety Data Sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH

Product name: MOLYKOTE® DX Paste

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SPECIALTY ELECTRONIC MATERIALS UK LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product name: MOLYKOTE® DX Paste

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Lubricants and lubricant additives

1.3 Details of the supplier of the safety data sheet
COMPANY IDENTIFICATION
SPECIALTY ELECTRONIC MATERIALS UK
LIMITED
KINGS COURT, LONDON ROAD
STEVENAGE
England
SG1 2NG
UNITED KINGDOM

Manufacturer DuPont Specialty Products GmbH & Co. KG

Customer Information Number: 00800-3876-6838
SDSQuestion-EU@dupont.com

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: +(44)-870-8200418
Local Emergency Contact: +(44)-870-8200418

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Short-term (acute) aquatic hazard - Category 1 - H400
Long-term (chronic) aquatic hazard - Category 3 - H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Hazard pictograms



Signal word: WARNING

Hazard statements

H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P273	Avoid release to the environment.
P370 + P261	In case of fire: Avoid breathing fume.
P391	Collect spillage.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

Endocrine disrupting properties (human health):
This substance/mixture does not contain components considered to have endocrine disrupting properties for human health according to UK REACH Article 57(f) at levels of 0.1% or higher.

Endocrine disrupting properties (environment):
This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f) at levels of 0.1% or higher.

PBT and vPvB assessment:
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.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Inorganic and organic compounds, Mixture
3.2 Mixtures

This product is a mixture.

Identification number	Component	Classification according to GB-CLP	specific concentration limit/ M-Factors/ Acute toxicity estimate	%
CASRN 64742-52-5 **EC-No.** 265-155-0 **Index-No.** 649-465-00-7 **Registration number** –	distillates (petroleum), hydrotreated heavy naphthenic	Asp. Tox. 1 - H304	Oral ATE: > 5,000 mg/kg Inhalation ATE: > 5.53 mg/l (dust/mist) Dermal ATE: > 5,000 mg/kg	>= 40.0 - < 50.0 %
CASRN 61791-53-5 **EC-No.** 263-186-4 **Index-No.** – **Registration number** –	N-Tallow Alkyltrimethylenediamine Oleate	Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT RE 2 - H373 Aquatic Acute 1 - H400 Aquatic Chronic 2 - H411	M-Factors: 10 [Acute] Oral ATE: > 5,000 mg/kg Dermal ATE: > 2,000 mg/kg	>= 2.5 - < 10.0 %
CASRN 64742-54-7 **EC-No.** 265-157-1 **Index-No.** 649-467-00-8 **Registration number** –	distillates (petroleum), hydrotreated heavy paraffinic	Asp. Tox. 1 - H304	Dermal ATE: > 2,000 mg/kg	>= 1.0 - < 10.0 %
CASRN 1314-13-2 **EC-No.** 215-222-5 **Index-No.** 030-013-00-7 **Registration number** –	zinc oxide	Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	M-Factors: 1 [Acute] 1 [Chronic] Oral ATE: > 5,000 mg/kg Inhalation ATE: > 5.7 mg/l (dust/mist) Dermal ATE: > 2,000 mg/kg	>= 1.0 - < 2.5 %

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

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if effects occur, consult a physician.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: No emergency medical treatment necessary.

4.2 Most important symptoms and effects, both acute and delayed:
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed
Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media: Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: Carbon oxides Oxides of phosphorus Fluorine compounds Nitrogen oxides (NOx)

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health. Toxic vapours are evolved.

5.3 Advice for firefighters
Fire Fighting Procedures: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves to prevent contact with hydrofluoric acid.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up: Wipe up or scrape up and contain for salvage or disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections:
See sections: 7, 8, 11, 12 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Do not get on skin or clothing. Do not swallow. Avoid contact with eyes. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

7.2 Conditions for safe storage, including any incompatibilities: Keep in properly labelled containers. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** None known.

7.3 Specific end use(s): Information on specific end use(s) of this product may be provided in a technical data sheet/annex to the SDS (if available).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

8.2 Exposure controls
Engineering measures: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures
Eye/face protection: Use safety glasses (with side shields).
Skin protection
Hand protection: Use gloves chemically resistant to this material. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into

account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.
Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator.

Environmental exposure controls
See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	solid (20 °C,)
	Form paste
Colour	white
Odour	slight
	Odour Threshold No data available
Melting point/freezing point	Melting point/ range: No data available
Boiling point or initial boiling point and boiling range	Boiling point/boiling range: Not applicable
Flammability	**Gases/Solids** Not classified as a flammability hazard
	Liquids No data available
Lower explosion limit and upper explosion limit / flammability limit	**Lower explosion limit** / **Lower flammability limit** No data available
	Upper explosion limit / **Upper flammability limit** No data available
Flash point	> 200 °C Method: (closed cup)

Auto-ignition temperature	No data available
Decomposition temperature	**Thermal decomposition** No data available
pH	Not applicable
Viscosity	**Viscosity, kinematic** Not applicable **Viscosity, dynamic** Not applicable
Solubility(ies)	**Water solubility** No data available
Partition coefficient: n-octanol/water	No data available
Vapour pressure	Not applicable
Density and / or relative density	**Relative density** 1.14
Relative vapour density	No data available
Particle characteristics	**Particle size** No data available

9.2 Other information

Oxidizing properties	The substance or mixture is not classified as oxidizing.
Substances and mixtures, which in contact with water, emit flammable gases	The substance or mixture does not emit flammable gases in contact with water.
Evaporation rate	Not applicable
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not classified as a reactivity hazard.

10.2 Chemical stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: Can react with strong oxidizing agents.

10.4 Conditions to avoid: None known.

10.5 Incompatible materials: Oxidizing agents

10.6 Hazardous decomposition products: Hexafluoroethane. Hydrogen Fluoride. 1,1,1,3,3,3-Hexafluoro-2-propanone. Carbonic difluoride. Carbon monoxide. Fluorinated hydrocarbons.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Information on toxicological effects

Acute toxicity

Acute toxicity (Acute oral toxicity)
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Acute toxicity (Acute dermal toxicity)
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Acute toxicity (Acute inhalation toxicity)
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Skin corrosion/irritation
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Serious eye damage/eye irritation
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Respiratory or skin sensitisation
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Germ cell mutagenicity
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Carcinogenicity
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Reproductive toxicity
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Toxicity to reproduction assessment :
Product test data not available. Refer to component data.

Assessment Teratogenicity:
Product test data not available. Refer to component data.

STOT - single exposure
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

STOT - repeated exposure
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Aspiration Hazard
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

COMPONENTS INFLUENCING TOXICOLOGY:

distillates (petroleum), hydrotreated heavy naphthenic

Acute toxicity (Acute oral toxicity)
LD50, Rat, > 5,000 mg/kg OECD Test Guideline 401

Acute toxicity (Acute dermal toxicity)
LD50, Rabbit, > 5,000 mg/kg OECD Test Guideline 402

Acute toxicity (Acute inhalation toxicity)
LC50, Rat, 4 Hour, dust/mist, > 5.53 mg/l OECD Test Guideline 403

Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.
Corneal injury is unlikely.

Respiratory or skin sensitisation
For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Carcinogenicity
No relevant data found.

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Aspiration Hazard
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

N-Tallow Alkyltrimethylenediamine Oleate

Acute toxicity (Acute oral toxicity)

LD50, Rat, > 5,000 mg/kg

Acute toxicity (Acute dermal toxicity)
Based on data from similar materials LD50, Rat, > 2,000 mg/kg OECD Test Guideline 402

Skin corrosion/irritation
Based on data from similar materials

Serious eye damage/eye irritation
Based on data from similar materials

Respiratory or skin sensitisation
Based on data from similar materials

STOT - repeated exposure
Based on data from similar materials

distillates (petroleum), hydrotreated heavy paraffinic

Acute toxicity (Acute oral toxicity)
Typical for this family of materials. Rat, > 5,000 mg/kg

Acute toxicity (Acute dermal toxicity)
Typical for this family of materials. Rabbit, > 2,000 mg/kg

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness.
Prolonged contact may cause moderate skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight eye irritation.
Corneal injury is unlikely.

Respiratory or skin sensitisation
For this family of materials, sensitization studies done in guinea pigs have been negative.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
Typical for this family of materials. In vitro genetic toxicity studies were predominantly negative. For this family of materials: Animal genetic toxicity studies were negative.

Carcinogenicity
Typical for this family of materials. Did not cause cancer in animal skin painting studies.

Reproductive toxicity
Toxicity to reproduction assessment :
Typical for this family of materials. Limited data in laboratory animals suggest that the material does not affect reproduction.

Assessment Teratogenicity:

Typical for this family of materials. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

STOT - single exposure
Available data are inadequate to determine single exposure specific target organ toxicity.

STOT - repeated exposure
For this family of materials:
In animals, effects have been reported on the following organs:
Liver.

Aspiration Hazard
May be fatal if swallowed and enters airways.

zinc oxide

Acute toxicity (Acute oral toxicity)
LD50, Rat, > 5,000 mg/kg

Acute toxicity (Acute dermal toxicity)
LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

Acute toxicity (Acute inhalation toxicity)
Exposure to metal oxide fumes may cause metal fume fever, characterized by influenza-like symptoms. Dust may cause irritation to upper respiratory tract (nose and throat).

LC50, Rat, 4 Hour, dust/mist, > 5.7 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation
Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.
Corneal injury is unlikely.

Respiratory or skin sensitisation
For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative in some cases and positive in other cases.

Carcinogenicity
Available data are inadequate to evaluate carcinogenicity.

Reproductive toxicity
Toxicity to reproduction assessment :
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Assessment Teratogenicity:

Did not cause birth defects in laboratory animals.

STOT - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Further information

No data available

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

12.1 Toxicity

distillates (petroleum), hydrotreated heavy naphthenic

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LL50, Pimephales promelas (fathead minnow), 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
EL50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l

Acute toxicity to algae/aquatic plants
EL50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 100 mg/l, OECD Test Guideline 201
NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, 100 mg/l, OECD Test Guideline 201

Toxicity to bacteria
NOEC, 10 min, >= 1.93 mg/l

Chronic toxicity to aquatic invertebrates
NOELR, Daphnia magna (Water flea), 21 d, 10 mg/l

N-Tallow Alkyltrimethylenediamine Oleate

Acute toxicity to fish
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
Based on data from similar materials
LC50, Danio rerio (zebra fish), 96 Hour, > 0.1 - 1 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
Based on data from similar materials
EC50, Daphnia magna (Water flea), 48 Hour, > 0.1 - 1 mg/l

Acute toxicity to algae/aquatic plants
Based on data from similar materials
EC50, 72 Hour, > 0.01 - 0.1 mg/l, OECD Test Guideline 201
Based on data from similar materials
NOEC, 72 Hour, > 0.01 - 0.1 mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates
Based on data from similar materials
EC10, Daphnia (water flea), > 1 mg/l

distillates (petroleum), hydrotreated heavy paraffinic

Acute toxicity to fish
Typical for this family of materials.
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
For this family of materials:
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, > 100 mg/l

Acute toxicity to aquatic invertebrates
For this family of materials:
EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants
NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, >100, OECD Test Guideline 201
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, >100, OECD Test Guideline 201

Toxicity to bacteria
Based on data from similar materials
NOEC, 10 min, > 1.93 mg/l, DIN 38 412 Part 8

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 10 mg/l

zinc oxide

Acute toxicity to fish
Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).
LC50, Danio rerio (zebra fish), static test, 96 Hour, 1.55 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 0.481 mg/l

Acute toxicity to algae/aquatic plants
IC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 0.136 mg/l
NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.024 mg/l

Chronic toxicity to fish

NOEC, Danio rerio (zebra fish), 32 d, mortality, >= 0.540 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 0.058 mg/l

12.2 Persistence and degradability

distillates (petroleum), hydrotreated heavy naphthenic
Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 31 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

N-Tallow Alkyltrimethylenediamine Oleate
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
Based on data from similar materials 10-day Window: Pass
Biodegradation: 65 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

distillates (petroleum), hydrotreated heavy paraffinic
Biodegradability: For this family of materials: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Fail
Biodegradation: 1.5 - 29 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

zinc oxide
Biodegradability: Biodegradation is not applicable.

12.3 Bioaccumulative potential

distillates (petroleum), hydrotreated heavy naphthenic
Partition coefficient: n-octanol/water(log Pow): 1.99 - 18.02

N-Tallow Alkyltrimethylenediamine Oleate
Bioaccumulation: No relevant data found.

distillates (petroleum), hydrotreated heavy paraffinic
Partition coefficient: n-octanol/water(log Pow): 1.99 - 18.02

zinc oxide
Bioaccumulation: Partitioning from water to n-octanol is not applicable.

12.4 Mobility in soil

distillates (petroleum), hydrotreated heavy naphthenic
No data available

N-Tallow Alkyltrimethylenediamine Oleate
Mobility in soil: No relevant data found.

distillates (petroleum), hydrotreated heavy paraffinic
No data available

zinc oxide
Mobility in soil: No data available.

12.5 Results of PBT and vPvB assessment

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.

distillates (petroleum), hydrotreated heavy naphthenic
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

N-Tallow Alkyltrimethylenediamine Oleate
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

distillates (petroleum), hydrotreated heavy paraffinic
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

zinc oxide
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects

distillates (petroleum), hydrotreated heavy naphthenic
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

N-Tallow Alkyltrimethylenediamine Oleate
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

distillates (petroleum), hydrotreated heavy paraffinic
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

zinc oxide
No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1	**UN number**	UN 3077
14.2	**UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(N-Tallow Alkyltrimethylenediamine Oleate, Zinc oxide)
14.3	**Transport hazard class(es)**	9
14.4	**Packing group**	III
14.5	**Environmental hazards**	N-Tallow Alkyltrimethylenediamine Oleate, Zinc oxide
14.6	**Special precautions for user**	Hazard Identification Number: 90

Classification for SEA transport (IMO-IMDG):

14.1	**UN number**	UN 3077
14.2	**UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(N-Tallow Alkyltrimethylenediamine Oleate, Zinc oxide)
14.3	**Transport hazard class(es)**	9
14.4	**Packing group**	III
14.5	**Environmental hazards**	N-Tallow Alkyltrimethylenediamine Oleate, Zinc oxide
14.6	**Special precautions for user**	EmS: F-A, S-F
14.7	**Transport in bulk according to Annex II of Marpol and the IBC Code**	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1	**UN number**	UN 3077
14.2	**UN proper shipping name**	Environmentally hazardous substance, solid, n.o.s.(N-Tallow Alkyltrimethylenediamine Oleate, Zinc oxide)
14.3	**Transport hazard class(es)**	9
14.4	**Packing group**	III
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

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

Major Accident Hazard Legislation
Control of Major Accident Hazards Regulations 2015 (COMAH)

E1	ENVIRONMENTAL HAZARDS	Lower-tier Quantity:	100 t
		Upper-tier Quantity:	200 t

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to REGULATION (EC) No 1272/2008 as amended by GB-CLP Regulation, UK SI 2019/720, and subsequent amendments
Aquatic Acute - 1 - H400 - Calculation method
Aquatic Chronic - 3 - H412 - Calculation method

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Skin Irrit.	Skin irritation
STOT RE	Specific target organ toxicity - repeated exposure

Full text of other abbreviations
GB CLP - REGULATION (EC) No 1272/2008 as amended by GB-CLP Regulation, UK SI 2019/720, UK SI 2020/1567, and subsequent amendments; UK-REACH - REACH Regulation (EC) No 1907/2006, as amended by UK REACH, UK SI 2019/758 and subsequent amendments; 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; 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 - Taiwan Chemical Substance Inventory; TECI - 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

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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