



# SAFETY DATA SHEET

## SPECIALTY ELECTRONIC MATERIALS UK LIMITED

Safety Data Sheet according to Regulation (EC) No 1907/2006 - Annex II

**Product name:** MOLYKOTE® DX Paste

**Revision Date:** 26.01.2023

**Version:** 6.0

**Date of last issue:** 08.01.2020

**Print Date:** 13.08.2023

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

**Classification according to Regulation (EC) No 1272/2008:**

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

Labelling according to Regulation (EC) No 1272/2008:

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.

P391 Collect spillage.

P501 Dispose of contents/ container to an approved waste disposal plant.

## 2.3 Other hazards

Endocrine disrupting properties (human health):

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Endocrine disrupting properties (environment):

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 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 Regulation (EU) 1272/2008 (CLP)	specific concentration limit/ M-Factors/ Acute toxicity estimate	%
<b>CASRN</b> 64742-52-5 <b>EC-No.</b> 265-155-0 <b>Index-No.</b> 649-465-00-7 <b>REACH No</b> —	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 %
<b>CASRN</b> 61791-53-5 <b>EC-No.</b> 263-186-4 <b>Index-No.</b> — <b>REACH No</b> —	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-Factor: 10[Acute]  Oral ATE: > 5,000 mg/kg  Dermal ATE: > 2,000 mg/kg	>= 2.5 - < 10.0 %
<b>CASRN</b> 64742-54-7 <b>EC-No.</b> 265-157-1 <b>Index-No.</b> 649-467-00-8 <b>REACH No</b> —	distillates (petroleum), hydrotreated heavy paraffinic	Asp. Tox. 1 - H304	Dermal ATE: > 2,000 mg/kg	>= 1.0 - < 10.0 %
<b>CASRN</b> 1314-13-2 <b>EC-No.</b> 215-222-5 <b>Index-No.</b> 030-013-00-7 <b>REACH No</b> 01-2119463881-32	zinc oxide	Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	M-Factor: 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.

*Note*

distillates (petroleum), hydrotreated heavy naphthenic:

The classification as a carcinogen need not to apply because the substance contains less than 3% DMSO extract as measured by IP 346. Note L of Annex VI to Regulation (EC) 1272/2008.

*Note*

distillates (petroleum), hydrotreated heavy paraffinic:

The classification as a carcinogen need not to apply because the substance contains less than 3% DMSO extract as measured by IP 346. Note L of Annex VI to Regulation (EC) 1272/2008.

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

**General advice:**

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 with plenty of water; remove contact lenses after the first 1-2 minutes then continue flushing for several minutes. Only mechanical effects expected. 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 (CO<sub>2</sub>) 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 (NO<sub>x</sub>)

**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.

Component	Regulation	Type of listing	Value
distillates (petroleum), hydrotreated heavy naphthenic	ACGIH	TWA Inhalable particulate matter	5 mg/m <sup>3</sup>
Further information: URT irr: Upper Respiratory Tract irritation; A4: Not classifiable as a human carcinogen			

distillates (petroleum), hydrotreated heavy paraffinic	ACGIH	TWA Inhalable particulate matter	5 mg/m3
	Further information: URT irr: Upper Respiratory Tract irritation; A4: Not classifiable as a human carcinogen		
zinc oxide	ACGIH	TWA Respirable particulate matter	2 mg/m3
	ACGIH	STEL Respirable particulate matter	10 mg/m3

**Predicted No Effect Concentration**

distillates (petroleum), hydrotreated heavy naphthenic

Compartment	PNEC
Oral (Secondary Poisoning)	9.33 mg/kg food

distillates (petroleum), hydrotreated heavy paraffinic

Compartment	PNEC
Oral (Secondary Poisoning)	9.33 mg/kg food

**8.2 Exposure controls**

**Engineering controls:** 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). Safety glasses (with side shields) should be consistent with EN 166 or equivalent. If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

**Skin protection**

**Hand protection:** Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. 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, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.

Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2 (meeting standard EN 14387).

#### 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, )
	<b>Form</b> paste
Colour	white
Odour	slight
	<b>Odour Threshold</b> 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	<b>Gases/Solids</b> Not classified as a flammability hazard
	<b>Liquids</b> No data available
Lower explosion limit and upper explosion limit / flammability limit	<b>Lower explosion limit / Lower flammability limit</b> No data available
	<b>Upper explosion limit / Upper flammability limit</b> No data available

<b>Flash point</b>	> 200 °C Method: (closed cup)
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	<b>Thermal decomposition</b> No data available
<b>pH</b>	Not applicable
<b>Viscosity</b>	<b>Viscosity, kinematic</b> Not applicable  <b>Viscosity, dynamic</b> Not applicable
<b>Solubility(ies)</b>	<b>Water solubility</b> No data available
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Vapour pressure</b>	Not applicable
<b>Density and / or relative density</b>	<b>Relative density</b> 1.14
<b>Relative vapour density</b>	No data available
<b>Particle characteristics</b>	<b>Particle size</b> No data available

## 9.2 Other information

<b>Oxidizing properties</b>	The substance or mixture is not classified as oxidizing.
<b>Self-heating substances</b>	The substance or mixture is not classified as self heating.
<b>Substances and mixtures, which in contact with water, emit flammable gases</b>	The substance or mixture does not emit flammable gases in contact with water.
<b>Evaporation rate</b>	Not applicable
<b>Molecular weight</b>	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 hazard classes as defined in Regulation (EC) No 1272/2008

#### 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.

**11.2. Information on other hazards****Endocrine disrupting properties**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**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 not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

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).

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

**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 not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

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 toxic to aquatic organisms (LC50/EC50/IC50 below 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,  $\geq 0.540$  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

**Bioaccumulation:** No relevant data found.



**N-Tallow Alkyltrimethylenediamine Oleate**

**Bioaccumulation:** No relevant data found.

**distillates (petroleum), hydrotreated heavy paraffinic**

**Bioaccumulation:** For this family of materials: Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

**zinc oxide**

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

**12.4 Mobility in soil****distillates (petroleum), hydrotreated heavy naphthenic**

No relevant data found.

**N-Tallow Alkyltrimethylenediamine Oleate**

No relevant data found.

**distillates (petroleum), hydrotreated heavy paraffinic**

No relevant data found.

**zinc oxide**

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 Endocrine disrupting properties**

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7 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 or ID 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 or ID 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 Maritime transport in bulk according to IMO | Consult IMO regulations before transporting ocean bulk                                                   |

**instruments****Classification for AIR transport (IATA/ICAO):**

<b>14.1 UN number or ID number</b>	UN 3077
<b>14.2 UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s.(N-Tallow Alkyltrimethylenediamine Oleate, Zinc oxide)
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>14.5 Environmental hazards</b>	Not applicable
<b>14.6 Special precautions for user</b>	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****Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.**

Listed in Regulation: ENVIRONMENTAL HAZARDS

Number in Regulation: E1

100 t

200 t

**15.2 Chemical safety assessment**

---

**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**

Aquatic Acute - 1 - H400 - Calculation method

Aquatic Chronic - 3 - H412 - Calculation method

**Revision**

Identification Number: 1288563 / A670 / Issue Date: 26.01.2023 / Version: 6.0

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

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
STEL	Short-term exposure limit
TWA	8-hour, time-weighted average
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**

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.

SPECIALTY ELECTRONIC MATERIALS UK LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

GB