



SAFETY DATA SHEET

SPECIALTY ELECTRONIC MATERIALS UK LIMITED

Safety Data Sheet according to Reg. (EU) No 2015/830

Product name: MOLYKOTE[®] Metal Protector Plus

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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[®] Metal Protector Plus

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

Identified uses: Corrosion inhibitors

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

SPECIALTY ELECTRONIC MATERIALS UK
LIMITED
STATION ROAD, BIRCH VALE, HIGH PEAK
DERBYSHIRE
England
SK22 1BR
UNITED KINGDOM

Customer Information Number:

800-3876-6838

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:

Flammable liquids - Category 3 - H226

Skin sensitisation - Category 1 - H317

Specific target organ toxicity - single exposure - Category 3 - H336

Specific target organ toxicity - repeated exposure - Category 1 - H372

Aspiration hazard - Category 1 - H304

Long-term (chronic) aquatic hazard - Category 2 - H411

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: DANGER

Hazard statements

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
H372	Causes damage to organs (Central nervous system) through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Supplemental information

EUH066 Repeated exposure may cause skin dryness or cracking.

Contains Naphtha (petroleum), hydrotreated light; Low boiling point hydrogen treated naphtha; Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha; Calcium salts of petroleum sulfonate

2.3 Other hazards

Static-accumulating flammable liquid.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Organic compound in solvent

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 64742-49-0 EC-No. 265-151-9 Index-No. 649-328-00-1	01-2119471843-32	>= 25.0 - <= 50.0 %	Naphtha (petroleum), hydrotreated light; Low boiling point hydrogen treated naphtha	Flam. Liq. - 3 - H226 STOT SE - 3 - H336 Asp. Tox. - 1 - H304 Aquatic Chronic - 3 - H412
CASRN 64742-82-1 EC-No. 265-185-4 Index-No. 649-330-00-2	—	>= 20.0 - <= 37.0 %	Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha	Flam. Liq. - 3 - H226 STOT SE - 3 - H336 STOT RE - 1 - H372 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411
CASRN 68783-96-0 EC-No. 272-213-9 Index-No. —	—	>= 5.0 - <= 8.0 %	Calcium salts of petroleum sulfonate	Skin Sens. - 1B - H317
CASRN 7173-62-8 EC-No. 230-528-9 Index-No. —	—	>= 0.26 - <= 0.35 %	(Z)-N-9- Octadecenylpropan e-1,3-diamine	Acute Tox. - 4 - H302 Skin Corr. - 1B - H314 Eye Dam. - 1 - H318 STOT RE - 1 - H372 Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410

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 not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

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: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

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: Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a 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: High volume water jet Do not use direct water stream.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides Sulphur oxides Metal oxides

Unusual Fire and Explosion Hazards: Flash back possible over considerable distance. Exposure to combustion products may be a hazard to health. Vapours may form explosive mixtures with air.

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 water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use a solid water stream as it may scatter and spread fire.

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. 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. Prevent spreading over a wide area (e.g. by containment or oil barriers). 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: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. 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 breathe vapours or spray mist. Do not swallow. Avoid contact with eyes. Keep container tightly closed. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice.

Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations. Restrict flow velocity in order to reduce the accumulation of static electricity. Ground and bond container and receiving equipment.

7.2 Conditions for safe storage, including any incompatibilities: Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Do not store with the following product types: Strong oxidizing agents. Organic peroxides. Flammable solids. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures, which in contact with water, emit flammable gases. Explosives. Gases. Unsuitable materials for containers: None known.

7.3 Specific end use(s): See the technical data sheet on this product for further information.

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.

Derived No Effect Level

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	570 mg/m3	n.a.	330 mg/m3	44 mg/kg bw/day	330 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	570 mg/m3	n.a.	n.a.	n.a.	26 mg/kg bw/day	71 mg/m3	26 mg/kg bw/day	n.a.	n.a.

Calcium salts of petroleum sulfonate

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	3.33 mg/kg bw/day	11.75 mg/m3	1.03 mg/kg bw/day	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	1.667 mg/kg bw/day	2.9 mg/m3	0.8333 mg/kg bw/day	0.513 mg/kg bw/day	n.a.

(Z)-N-9-Octadecenylpropane-1,3-diamine

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	0.01 mg/kg bw/day	0.035 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
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Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Predicted No Effect Concentration

Calcium salts of petroleum sulfonate

Compartment	PNEC
Fresh water	1 mg/l
Marine water	1 mg/l
Intermittent use/release	10 mg/l
Sewage treatment plant	10 mg/l
Fresh water sediment	226000000 mg/kg
Marine sediment	226000000 mg/kg
Soil	271000000 mg/kg
Oral (Secondary Poisoning)	16.67 mg/kg food

(Z)-N-9-Octadecenylpropane-1,3-diamine

Compartment	PNEC
Fresh water	0.010 mg/l
Marine water	0.001 mg/l
Intermittent use/release	0.0029 mg/l
Sewage treatment plant	0.251 mg/l
Fresh water sediment	0.22 mg/kg
Marine sediment	0.022 mg/kg
Soil	10 mg/kg

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.

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 discomfort is experienced, 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

Appearance

Physical state	liquid
Color	Straw-coloured
Odor	solvent-like
Odor Threshold	No data available
pH	No data available
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	> 35 °C
Flash point	closed cup 24 °C
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	0.87

Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	16 mm ² /s at 25 °C
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other information

Molecular weight	No data available
Particle size	Not applicable

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. Vapours may form explosive mixture with air. Flammable liquid and vapour.

10.4 Conditions to avoid: Heat, flames and sparks.

10.5 Incompatible materials: Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: TOXICOLOGICAL INFORMATION

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

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 5,000 mg/kg Estimated.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, Rat, > 2,000 mg/kg Estimated.

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to vapor. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause slight eye irritation.
Corneal injury is unlikely.

Sensitization

For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Contains component(s) which have been reported to cause effects on the following organs in humans:
Central nervous system.

Carcinogenicity

No relevant data found.

Teratogenicity

Contains component(s) which caused birth defects in laboratory animals only at doses toxic to the mother. Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the mother.

Reproductive toxicity

Contains component(s) which did not interfere with reproduction in animal studies.

Mutagenicity

Contains a component(s) which were negative in in vitro genetic toxicity studies. Contains component(s) which were negative in animal genetic toxicity studies.

Aspiration Hazard

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

COMPONENTS INFLUENCING TOXICOLOGY:

Naphtha (petroleum), hydrotreated light; Low boiling point hydrogen treated naphtha

Acute inhalation toxicity

Based on data from similar materials LC50, Rat, 4 Hour, vapour, > 4,951 mg/m³

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

Acute inhalation toxicity

Based on data from similar materials LC50, Rat, 4 Hour, vapour, > 13.1 mg/l

Calcium salts of petroleum sulfonate

Acute inhalation toxicity

For similar material(s): LC50, Rat, 4 Hour, dust/mist, > 1.9 mg/l

(Z)-N-9-Octadecenylpropane-1,3-diamine

Acute inhalation toxicity

The LC50 has not been determined.

SECTION 12: ECOLOGICAL INFORMATION

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

12.1 Toxicity

Naphtha (petroleum), hydrotreated light; Low boiling point hydrogen treated naphtha

Acute toxicity to fish

Based on data from similar materials

LL50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, > 10 - 30 mg/l, OECD Test Guideline 203, Test substance: Water Accommodated Fraction

Acute toxicity to aquatic invertebrates

Based on data from similar materials

EL50, *Daphnia magna* (Water flea), 48 Hour, > 22 - 46 mg/l, OECD Test Guideline 202, Test substance: Water Accommodated Fraction

Acute toxicity to algae/aquatic plants

Based on data from similar materials

EL50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, > 1,000 mg/l, OECD Test Guideline 201, Test substance: Water Accommodated Fraction

Based on data from similar materials

NOELR, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 1 mg/l, OECD Test Guideline 201, Test substance: Water Accommodated Fraction

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

Acute toxicity to fish

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

Based on data from similar materials

LL50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 10 - 30 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

Based on data from similar materials

EL50, Daphnia magna (Water flea), 48 Hour, 10 - 22 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

Based on data from similar materials

EL50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 4.6 - 10 mg/l, OECD Test Guideline 201

Based on data from similar materials

NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.22 mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates

Based on data from similar materials

NOELR, Daphnia magna (Water flea), 21 d, 0.097 mg/l

Calcium salts of petroleum sulfonate

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).

Based on data from similar materials

LL50, Cyprinodon variegatus (sheepshead minnow), 96 Hour, > 10,000 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

Based on data from similar materials

EL50, Daphnia magna (Water flea), 48 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants

Based on data from similar materials

NOELR, Pseudokirchneriella subcapitata (green algae), 96 Hour, 1,000 mg/l

Toxicity to bacteria

Based on data from similar materials

EC50, 3 Hour, > 10,000 mg/l, OECD Test Guideline 209

(Z)-N-9-Octadecenylpropane-1,3-diamine

Acute toxicity to fish

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

LC50, Fish, 96 Hour, 0.08 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 0.013 - 0.025 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Desmodesmus subspicatus (green algae), 72 Hour, 0.507 mg/l, OECD Test Guideline 201

Toxicity to bacteria

EC50, 3 Hour, 66 mg/l, OECD Test Guideline 209

Chronic toxicity to aquatic invertebrates

NOEC, water flea Daphnia magna, 21 d, 0.1 mg/l

12.2 Persistence and degradability

Naphtha (petroleum), hydrotreated light; Low boiling point hydrogen treated naphtha

Biodegradability: Based on data from similar materials

Biodegradation: 89 %

Exposure time: 28 d

Method: OECD Test Guideline 301F

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Based on data from similar materials 10-day Window: Pass

Biodegradation: 74.7 %

Exposure time: 28 d

Method: OECD Test Guideline 301F

Calcium salts of petroleum sulfonate

Biodegradability: For similar material(s): 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.

Biodegradation: 8.6 %

Exposure time: 28 d

Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

Bioaccumulation: Based on data from similar materials

Partition coefficient: n-octanol/water(log Pow): > 4

Calcium salts of petroleum sulfonate

Bioaccumulation: No relevant data found.

(Z)-N-9-Octadecenylpropane-1,3-diamine

Bioaccumulation: Based on data from similar materials Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7). Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient: n-octanol/water(log Pow): 0.03 Estimated.

Bioconcentration factor (BCF): > 500 Fish

12.4 Mobility in soil

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

No relevant data found.

Calcium salts of petroleum sulfonate

No relevant data found.

(Z)-N-9-Octadecenylpropane-1,3-diamine

Partition coefficient (K_{oc}): > 5000 Estimated.

12.5 Results of PBT and vPvB assessment**Naphtha (petroleum), hydrotreated light; Low boiling point hydrogen treated naphtha**

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

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

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

Calcium salts of petroleum sulfonate

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

(Z)-N-9-Octadecenylpropane-1,3-diamine

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

12.6 Other adverse effects**Naphtha (petroleum), hydrotreated light; Low boiling point hydrogen treated naphtha**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Naphtha (petroleum), hydrodesulfurized heavy; Low boiling point hydrogen treated naphtha

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Calcium salts of petroleum sulfonate

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

(Z)-N-9-Octadecenylpropane-1,3-diamine

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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 1139

14.2 UN proper shipping name	COATING SOLUTION
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazards	Naphtha (petroleum), hydrodesulfurized heavy, (Z)-N-9-Octadecenypropane-1,3-diamine
14.6 Special precautions for user	Special Provision 640E Hazard Identification Number: 30

Classification for SEA transport (IMO-IMDG):

14.1 UN number	UN 1139
14.2 UN proper shipping name	COATING SOLUTION
14.3 Transport hazard class(es)	3
14.4 Packing group	III
14.5 Environmental hazards	Naphtha (petroleum), hydrodesulfurized heavy, (Z)-N-9-Octadecenypropane-1,3-diamine
14.6 Special precautions for user	EmS: F-E, S-E
14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1 UN number	UN 1139
14.2 UN proper shipping name	Coating solution
14.3 Transport hazard class(es)	3
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

REACH Regulation (EC) No 1907/2006

This product contains only components that have been either pre-registered, registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH). The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

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: FLAMMABLE LIQUIDS

Number in Regulation: P5c

5,000 t

50,000 t

Listed in Regulation: ENVIRONMENTAL HAZARDS

Number in Regulation: E2

200 t

500 t

Listed in Regulation: Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams), (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

Number in Regulation: 34

2,500 t

25,000 t

15.2 Chemical safety assessment

Not applicable

SECTION 16: OTHER INFORMATION

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

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
H372	Causes 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

Flam. Liq. - 3 - H226 - Based on product data or assessment

Skin Sens. - 1 - H317 - Calculation method

STOT SE - 3 - H336 - Calculation method
 STOT RE - 1 - H372 - Calculation method
 Asp. Tox. - 1 - H304 - Based on product data or assessment
 Aquatic Chronic - 2 - H411 - 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

Acute Tox.	Acute toxicity
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Eye Dam.	Serious eye damage
Flam. Liq.	Flammable liquids
Skin Corr.	Skin corrosion
Skin Sens.	Skin sensitisation
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; 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; 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.

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