



# SAFETY DATA SHEET

## SPECIALTY ELECTRONIC MATERIALS UK LIMITED

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

**Product name:** MOLYKOTE™ L-1468 FM Synthetic Freezer  
Chain Oil

**Revision Date:** 19.12.2018  
**Version:** 2.0  
**Date of last issue:** 16.10.2018  
**Print Date:** 21.02.2020

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™ L-1468 FM Synthetic Freezer Chain Oil

#### 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  
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:

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 statements

H412 Harmful to aquatic life with long lasting effects.

#### Precautionary statements

P261 Avoid breathing spray.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P501 Dispose of contents/ container to an approved waste disposal plant.

## 2.3 Other hazards

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical nature:** Inorganic and organic compounds, in synthetic oil

### 3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
<b>CASRN</b> 68037-01-4 <b>EC-No.</b> 500-183-1 <b>Index-No.</b> —	01-2119486452-34	>= 95.0 - <= 99.0 %	1-Decene, homopolymer, hydrogenated	Asp. Tox. - 1 - H304
<b>CASRN</b> 128-37-0 <b>EC-No.</b> 204-881-4 <b>Index-No.</b> —	01-2119555270-46	>= 0.1 - <= 0.9 %	Di-t-butyl-p-cresol	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:

If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** No emergency medical treatment necessary.

**Skin contact:** Wash off with plenty of water.

**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.

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## **SECTION 5: FIREFIGHTING MEASURES**

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**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

**Unusual Fire and Explosion Hazards:** Exposure to combustion products may be a hazard to health.

**5.3 Advice for firefighters**

**Fire Fighting Procedures:** Collect contaminated fire extinguishing water separately. This must not be discharged into drains. 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:** Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

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## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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**6.1 Personal precautions, protective equipment and emergency procedures:** 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:** Soak up with inert absorbent material. Clean up remaining materials from spill with suitable absorbent. 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.

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## SECTION 7: HANDLING AND STORAGE

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**7.1 Precautions for safe handling:** Avoid inhalation of vapour or mist. 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):** See the technical data sheet on this product for further information.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 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/Notation
Di-t-butyl-p-cresol	ACGIH	TWA Inhalable	2 mg/m <sup>3</sup>
	GB EH40	fraction and vapor TWA	10 mg/m <sup>3</sup>

### Derived No Effect Level

Di-t-butyl-p-cresol

#### Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation

n.a.	n.a.	n.a.	n.a.	8.3 mg/kg bw/day	5.8 mg/m3	n.a.	n.a.
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#### Consumers

Acute systemic effects			Acute local effects		Long-term systemic effects			Long-term local effects	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	5 mg/kg bw/day	1.74 mg/m3	n.a.	n.a.	n.a.

#### Predicted No Effect Concentration

Di-t-butyl-p-cresol

Compartment	PNEC
Marine water	0.4 µg/l
Fresh water	4 µg/l
Intermittent use/release	4 µg/l
Sewage treatment plant	100 mg/l
Fresh water sediment	1.29 mg/kg
Soil	1.04 mg/kg
Oral (Secondary Poisoning)	16.7 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.

#### 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, type A (boiling point >65 °C, 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.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	liquid
Color	colourless
Odor	none
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	<b>closed cup</b> 270 °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)	0.83
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	68 mm <sup>2</sup> /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.

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## SECTION 10: STABILITY AND REACTIVITY

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**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

No hazardous decomposition products are known.

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## SECTION 11: TOXICOLOGICAL INFORMATION

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*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 inhalation.

As product: The LC50 has not been determined.

Based on information for component(s):

LC50, Rat, 4 Hour, dust/mist, > 5.2 mg/l Estimated.

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

**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)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

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

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

No relevant data found.

**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**

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

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## **SECTION 12: ECOLOGICAL INFORMATION**

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

### **12.1 Toxicity**



### **1-Decene, homopolymer, hydrogenated**

#### **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).

LC50, Brachydanio rerio (zebrafish), semi-static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203

#### **Acute toxicity to aquatic invertebrates**

EL50, Daphnia magna (Water flea), 48 Hour, > 1,000 mg/l, OECD Test Guideline 202

#### **Acute toxicity to algae/aquatic plants**

EL50, Scenedesmus capricornutum (fresh water algae), 72 Hour, > 1,000 mg/l, OECD Test Guideline 201

NOELR, Scenedesmus capricornutum (fresh water algae), 72 Hour, 1,000 mg/l, OECD Test Guideline 201

#### **Toxicity to bacteria**

NOEC, 28 d, 2 mg/l, OECD Test Guideline 301D

#### **Chronic toxicity to aquatic invertebrates**

NOELR, Daphnia magna (Water flea), 21 d, 125 mg/l

### **Di-t-butyl-p-cresol**

#### **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), 96 Hour, > 0.57 mg/l

#### **Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), static test, 48 Hour, 0.48 mg/l, OECD Test Guideline 202 or Equivalent

#### **Acute toxicity to algae/aquatic plants**

EC50, Desmodesmus subspicatus (green algae), 72 Hour, > 0.4 mg/l, Directive 67/548/EEC, Annex V, C.3.

EC10, Desmodesmus subspicatus (green algae), 72 Hour, 0.4 mg/l, Directive 67/548/EEC, Annex V, C.3.

#### **Toxicity to bacteria**

EC50, 3 Hour, > 10,000 mg/l

#### **Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.07 mg/l

## **12.2 Persistence and degradability**

### **1-Decene, homopolymer, hydrogenated**

**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:** 2 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D

#### Di-t-butyl-p-cresol

**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:** 4.5 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301C or Equivalent

### 12.3 Bioaccumulative potential

#### 1-Decene, homopolymer, hydrogenated

**Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

**Partition coefficient: n-octanol/water(log Pow):** > 6.5 OECD Test Guideline 117

#### Di-t-butyl-p-cresol

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 4.17 - 5.10 Estimated.

**Bioconcentration factor (BCF):** 598.4 Fish Estimated.

### 12.4 Mobility in soil

#### 1-Decene, homopolymer, hydrogenated

No relevant data found.

#### Di-t-butyl-p-cresol

Expected to be relatively immobile in soil (Koc > 5000).

**Partition coefficient (Koc):** > 5000 Estimated.

### 12.5 Results of PBT and vPvB assessment

#### 1-Decene, homopolymer, hydrogenated

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

#### Di-t-butyl-p-cresol

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

### 12.6 Other adverse effects

#### 1-Decene, homopolymer, hydrogenated

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

#### Di-t-butyl-p-cresol

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

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## SECTION 13: DISPOSAL CONSIDERATIONS

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### 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.

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## **SECTION 14: TRANSPORT INFORMATION**

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

- |  |   |
|--|---|
| <b>14.1 UN number</b>                    | Not applicable  |
| <b>14.2 UN proper shipping name</b>      | Not regulated for transport                                       |
| <b>14.3 Transport hazard class(es)</b>   | Not applicable  |
| <b>14.4 Packing group</b>                | Not applicable  |
| <b>14.5 Environmental hazards</b>        | Not considered environmentally hazardous based on available data. |
| <b>14.6 Special precautions for user</b> | No data available.  |

### **Classification for SEA transport (IMO-IMDG):**

- |  |   |
|--|---|
| <b>14.1 UN number</b>  | Not applicable  |
| <b>14.2 UN proper shipping name</b>  | Not regulated for transport                                 |
| <b>14.3 Transport hazard class(es)</b>   | Not applicable  |
| <b>14.4 Packing group</b>  | Not applicable  |
| <b>14.5 Environmental hazards</b>  | Not considered as marine pollutant based on available data. |
| <b>14.6 Special precautions for user</b>   | No data available.  |
| <b>14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b> | Consult IMO regulations before transporting ocean bulk      |

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

- |  |                             |
|--|-----------------------------|
| <b>14.1 UN number</b>                    | Not applicable              |
| <b>14.2 UN proper shipping name</b>      | Not regulated for transport |
| <b>14.3 Transport hazard class(es)</b>   | Not applicable              |
| <b>14.4 Packing group</b>                | Not applicable              |
| <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.

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## **SECTION 15: REGULATORY INFORMATION**

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### **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 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: Not applicable

### **15.2 Chemical safety assessment**

Not applicable

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## **SECTION 16: OTHER INFORMATION**

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

H304	May be fatal if swallowed and enters airways.
H400	Very toxic to aquatic life.
H410	Very 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 Chronic - 3 - H412 - Calculation method

### **Revision**

Identification Number: 4012172 / A670 / Issue Date: 19.12.2018 / Version: 2.0

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)
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GB EH40	UK. EH40 WEL - Workplace Exposure Limits
TWA	Long-term exposure limit (8-hour TWA reference period)
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard

**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.

GB