



SAFETY DATA SHEET

SPECIALTY ELECTRONIC MATERIALS UK LIMITED

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

Product name: MOLYKOTE™ TP-42 Paste

Revision Date: 16.10.2018

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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™ TP-42 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
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:

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

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

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

Supplemental information

EUH210 Safety data sheet available on request.

2.3 Other hazards

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Inorganic and organic compounds, Mixture

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 1305-62-0 EC-No. 215-137-3 Index-No. —	—	>= 32.0 - <= 44.0 %	Calcium hydroxide	Skin Irrit. - 2 - H315 Eye Dam. - 1 - H318 STOT SE - 3 - H335
CASRN 9003-29-6 EC-No. 500-004-7 Index-No. —	—	>= 8.0 - <= 12.0 %	Polybutene	Asp. Tox. - 1 - H304
CASRN 64742-52-5 EC-No. 265-155-0 Index-No. 649-465-00-7	—	>= 6.0 - <= 8.0 %	distillates (petroleum), hydrotreated heavy naphthenic	Asp. Tox. - 1 - H304
Substances with a workplace exposure limit				
CASRN 8002-74-2 EC-No. 232-315-6 Index-No. —	—	>= 1.1 - <= 2.1 %	Paraffin/Hydrocarbo n waxes	Not classified

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

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.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

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

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: Metal oxides Carbon oxides Oxides of phosphorus Formaldehyde

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

5.3 Advice for firefighters

Fire Fighting Procedures: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. 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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

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

6.2 Environmental precautions: Discharge into the environment must be avoided. 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: 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.

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/Notation
distillates (petroleum), hydrotreated heavy naphthenic Paraffin/Hydrocarbon waxes	ACGIH	TWA Inhalable fraction	5 mg/m3
	ACGIH	TWA	2 mg/m3

ACGIH	TWA Fumes	2 mg/m3
GB EH40	TWA	2 mg/m3
GB EH40	STEL	6 mg/m3
GB EH40	TWA Fumes	2 mg/m3
GB EH40	STEL Fumes	6 mg/m3

Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

Derived No Effect Level

Calcium hydroxide

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.	4 mg/m3	n.a.	n.a.	n.a.	1 mg/m3

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.	4 mg/m3	n.a.	n.a.	n.a.	n.a.	1 mg/m3

Predicted No Effect Concentration

Calcium hydroxide

Compartment	PNEC
Fresh water	0.49 mg/l
Marine water	0.32 mg/l
Intermittent use/release	0.49 mg/l
Sewage treatment plant	3 mg/l
Soil	1080 mg/kg

distillates (petroleum), hydrotreated heavy naphthenic

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 chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. 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 3 or higher (breakthrough time greater than 60 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: Wear clean, body-covering clothing.

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, type A (boiling point >65 °C)

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	paste
Color	white
Odor	none
Odor Threshold	No data available
pH	Not applicable

Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	Not applicable
Flash point	closed cup 160 °C
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Not classified as a flammability hazard
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.1
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
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 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: 1-Butene.

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, Rabbit, > 2,000 mg/kg Estimated.

Acute inhalation toxicity

Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation.

As product: The LC50 has not been determined.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.

Effects are likely to heal readily.

Corneal injury is unlikely.

Sensitization

For skin sensitization:

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

Contains component(s) which have not demonstrated the potential for contact allergy in mice.

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)

Contains component(s) which have been reported to cause effects on the following organs in animals:
Liver.

Carcinogenicity

Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity

Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the mother. Contains component(s) which did not cause birth defects in laboratory animals.

Reproductive toxicity

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

Mutagenicity

Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Contains component(s) which were negative in animal genetic toxicity studies.

Aspiration Hazard

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

COMPONENTS INFLUENCING TOXICOLOGY:**Calcium hydroxide****Acute inhalation toxicity**

The LC50 has not been determined.

Polybutene**Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, 4.82 mg/l

distillates (petroleum), hydrotreated heavy naphthenic**Acute inhalation toxicity**

LC50, Rat, 4 Hour, dust/mist, > 5.53 mg/l OECD Test Guideline 403

Paraffin/Hydrocarbon waxes**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**Calcium hydroxide****Acute toxicity to fish**

Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).

LC50, *Gasterosteus aculeatus* (threespine stickleback), 96 Hour, 457 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 49.1 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 184.57 mg/l, OECD Test Guideline 201

Toxicity to bacteria

EC50, 3 Hour, 300.4 mg/l, OECD Test Guideline 209

Chronic toxicity to aquatic invertebrates

NOEC, 14 d, 32 mg/l

Polybutene

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, Pimephales promelas (fathead minnow), static test, 96 Hour, > 1,000 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

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

Paraffin/Hydrocarbon waxes

Acute toxicity to fish

Based on information for component(s):

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

12.2 Persistence and degradability

Calcium hydroxide

Biodegradability: No relevant data found.

Polybutene

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

10-day Window: Pass

Biodegradation: 93.9 %

Exposure time: 28 d

Method: OECD Test Guideline 310

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

Paraffin/Hydrocarbon waxes

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

10-day Window: Pass

Biodegradation: 80 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

12.3 Bioaccumulative potential

Calcium hydroxide

Bioaccumulation: Not applicable

Polybutene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 2.89 Measured

distillates (petroleum), hydrotreated heavy naphthenic

Bioaccumulation: No relevant data found.

Paraffin/Hydrocarbon waxes

Bioaccumulation: Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

Partition coefficient: n-octanol/water(log Pow): > 6 Calculated.

12.4 Mobility in soil

Calcium hydroxide

No relevant data found.

Polybutene

For similar material(s):

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 43.79 Estimated.

distillates (petroleum), hydrotreated heavy naphthenic

No relevant data found.

Paraffin/Hydrocarbon waxes

No relevant data found.

12.5 Results of PBT and vPvB assessment

Calcium hydroxide

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

Polybutene

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

distillates (petroleum), hydrotreated heavy naphthenic

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

Paraffin/Hydrocarbon waxes

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

12.6 Other adverse effects

Calcium hydroxide

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

Polybutene

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

distillates (petroleum), hydrotreated heavy naphthenic

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

Paraffin/Hydrocarbon waxes

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

Classification for SEA transport (IMO-IMDG):

- | | |
|---|---|
| 14.1 UN number | Not applicable |
| 14.2 UN proper shipping name | Not regulated for transport |
| 14.3 Transport hazard class(es) | Not applicable |
| 14.4 Packing group | Not applicable |
| 14.5 Environmental hazards | Not considered as marine pollutant based on available data. |
| 14.6 Special precautions for user | No data available. |
| 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 | Not applicable |
| 14.2 UN proper shipping name | Not regulated for transport |
| 14.3 Transport hazard class(es) | Not applicable |
| 14.4 Packing group | Not applicable |
| 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). Polymers are exempted from registration under REACH. All relevant starting materials and additives have been either pre-registered, registered, or are exempt from registration 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.

Restrictions on the manufacture, placing on the market and use:

The following substance/s contained in this product is/are subject through Annex XVII of REACH regulation to restrictions on the manufacture, placing on the market and use when present in certain dangerous substances, mixtures and articles. Users of this product have to comply with the restrictions placed upon it by the aforementioned provision.

CAS-No.: 64742-52-5	Name: distillates (petroleum), hydrotreated heavy naphthenic
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Restriction status: listed in REACH Annex XVII

Restricted uses: See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction

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

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.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

This product is not classified as dangerous according to EC criteria.

Revision

Identification Number: 2209942 / A670 / Issue Date: 16.10.2018 / 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)
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
STEL	Short-term exposure limit (15-minute reference period)
TWA	8-hour, time-weighted average
Asp. Tox.	Aspiration hazard
Eye Dam.	Serious eye damage
Skin Irrit.	Skin irritation
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; 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