SAFETY DATA SHEET

SPECIALTY ELECTRONIC MATERIALS UK LIMITED

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

Product name: MOLYKOTE® 3400A Anti-Friction Coating LF

Revision Date: 20.11.2025
Version: 15.0
Date of last issue: 29.09.2025
Print Date: 26.11.2025

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® 3400A Anti-Friction Coating LF

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

Uses advised against: For industrial/professional use only.

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

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

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: +(44)-2038850382
Local Emergency Contact: +(44)-2038850382

SECTION 2: HAZARDS IDENTIFICATION

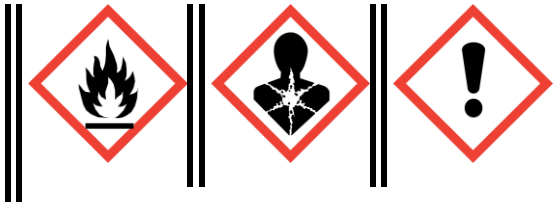
2.1 Classification of the substance or mixture

Flammable liquids - Category 2 - H225
Eye irritation - Category 2 - H319

Skin sensitisation - Category 1 - H317
Carcinogenicity - Category 2 - H351
Specific target organ toxicity - single exposure - Category 3 - H336
Long-term (chronic) aquatic hazard - Category 3 - H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Hazard pictograms



Signal word: DANGER

Hazard statements

H225	Highly flammable liquid and vapour.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Supplemental information

EUH066 Repeated exposure may cause skin dryness or cracking.
The following percentage of the mixture consists of ingredient(s) with unknown acute dermal toxicity: 13.14 %

Contains n-butyl acetate; antimony trioxide; Cobalt bis(ethylhexanoate); formaldehyde

2.3 Other hazards
Static-accumulating flammable liquid.

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

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

PBT and vPvB assessment:
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Inorganic and organic compounds, dispersion
3.2 Mixtures

This product is a mixture.

Identification number	Component	Classification according to GB-CLP	specific concentration limit/ M-Factors/ Acute toxicity estimate	%
CASRN 123-86-4 **EC-No.** 204-658-1 **Index-No.** 607-025-00-1 **Registration number** –	n-butyl acetate	Flam. Liq. 3 - H226 STOT SE 3 - H336 EUH066	Oral ATE: 12,789 mg/kg Dermal ATE: > 14,112 mg/kg	>= 20.0 - < 30.0 %
CASRN 78-93-3 **EC-No.** 201-159-0 **Index-No.** 606-002-00-3 **Registration number** –	Methyl ethyl ketone	Flam. Liq. 2 - H225 Eye Irrit. 2 - H319 STOT SE 3 - H336 EUH066	Oral ATE: 2,193 mg/kg Inhalation ATE: 32 mg/l (vapour) Dermal ATE: > 8,049 mg/kg	>= 10.0 - < 20.0 %
CASRN 1309-64-4 **EC-No.** 215-175-0 **Index-No.** 051-005-00-X **Registration number** –	antimony trioxide	Carc. 2 - H351	Oral ATE: > 20,000 mg/kg Inhalation ATE: > 5.2 mg/l (dust/mist) Dermal ATE: > 8,300 mg/kg	>= 10.0 - < 20.0 %

CASRN 64-17-5 **EC-No.** 200-578-6 **Index-No.** 603-002-00-5 **Registration number** –	ethanol	Flam. Liq. 2 - H225 Eye Irrit. 2 - H319	2; H319:C >= 50 % Oral ATE: 10,470 mg/kg Inhalation ATE: 124.7 mg/l (vapour)	>= 10.0 - < 20.0 %
CASRN 67-56-1 **EC-No.** 200-659-6 **Index-No.** 603-001-00-X **Registration number** –	methanol	Flam. Liq. 2 - H225 Acute Tox. 3 - H301 Acute Tox. 3 - H331 Acute Tox. 3 - H311 STOT SE 1 - H370	STOT SE1; H370:C >= 10 % STOT SE2; H371:C 3 - < 10 % Oral ATE: 100 mg/kg Inhalation ATE: 3 mg/l (vapour) Dermal ATE: 300 mg/kg	>= 0.1 - < 1.0 %
CASRN 136-52-7 **EC-No.** 205-250-6 **Index-No.** 607-230-00-6 **Registration number** –	Cobalt bis(ethylhexanoate)	Eye Irrit. 2 - H319 Skin Sens. 1A - H317 Repr. 2 - H361fd Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	M-Factors: 10 [Acute] 1 [Chronic] Oral ATE: 3,129 mg/kg Dermal ATE: 5,690 mg/kg	>= 0.25 - < 1.0 %
CASRN 50-00-0 **EC-No.** 200-001-8 **Index-No.** 605-001-00-5 **Registration number** –	formaldehyde	Acute Tox. 3 - H301 Acute Tox. 2 - H330 Acute Tox. 3 - H311 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Muta. 2 - H341 Carc. 1B - H350 STOT SE 3 - H335	Eye Dam.1; H318:C >= 25 % Skin Corr.1B; H314:C >= 25 % Skin Irrit.2; H315:C 5 - < 25 % Eye Irrit.2; H319:C 5 - < 25 % STOT SE3; H335:C >= 5 % Skin Sens.1; H317:C >= 0.2 % Oral ATE: 100 mg/kg Inhalation ATE: 463 ppm (gas) Dermal ATE: 270 mg/kg	< 0.1 %

Substances with a workplace exposure limit

Identification number	Component	Classification according to GB-CLP	specific concentration limit/ M-Factors/ Acute toxicity estimate	%
CASRN 1317-33-5 **EC-No.** 215-263-9 **Index-No.** – **Registration number** –	Molybdenum disulfide	Not classified	Oral ATE: > 2,000 mg/kg Dermal ATE: > 2,000 mg/kg	>= 10.0 - < 20.0 %

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

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If skin irritation occurs: Get medical advice/ attention.

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. Suitable emergency eye wash facility should be available in work area.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel. Consult a physician if 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: 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 Chlorine compounds

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. Ventilate the area. 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. Do not get in 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.

Advice on general occupational hygiene
Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating. Ensure that eye flushing systems and safety showers are located close to the working place.

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

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Component	Regulation	Type of listing	Value
n-butyl acetate	GB EH40	TWA	724 mg/m3 150 ppm
	GB EH40	STEL	966 mg/m3 200 ppm
Methyl ethyl ketone	GB EH40	TWA	600 mg/m3 200 ppm
	Further information: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
	GB EH40	STEL	899 mg/m3 300 ppm
	Further information: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
antimony trioxide	GB EH40	TWA	0.5 mg/m3 , antimony
ethanol	GB EH40	TWA	1,920 mg/m3 1,000 ppm
methanol	GB EH40	TWA	266 mg/m3 200 ppm
	Further information: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
	GB EH40	STEL	333 mg/m3 250 ppm
	Further information: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
Cobalt bis(ethylhexanoate)	GB EH40	TWA	0.1 mg/m3 , Cobalt
	Further information: Sen: Capable of causing occupational asthma.; Carc: Capable of causing cancer and/or heritable genetic damage.		
formaldehyde	GB EH40	TWA	2.5 mg/m3 2 ppm
	Further information: Carc: Capable of causing cancer and/or heritable genetic damage.		

	GB EH40	STEL	2.5 mg/m3 2 ppm
	Further information: Carc: Capable of causing cancer and/or heritable genetic damage.		
Molybdenum disulfide	GB EH40	TWA	10 mg/m3 , Molybdenum
	GB EH40	STEL	20 mg/m3 , Molybdenum

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methyl ethyl ketone	78-93-3	butan-2-one	Urine	After shift	70 micromol per litre	GB EH40 BAT

8.2 Exposure controls
Engineering measures: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point.

Individual protection measures
Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.
Skin protection
Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Nitrile. Avoid gloves made of: Natural rubber ("latex"). 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 2 or higher (breakthrough time greater than 30 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.

Environmental exposure controls

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	liquid (20 °C,) liquid (40 °C,)
Colour	Charcoal
Odour	solvent-like
	Odour Threshold No data available
Melting point/freezing point	Melting point/ range: No data available
Boiling point or initial boiling point and boiling range	Boiling point/boiling range: > 35 °C
Flammability	**Gases/Solids** Not applicable
	Liquids No data available
Lower explosion limit and upper explosion limit / flammability limit	**Lower explosion limit** / **Lower flammability limit** No data available
	Upper explosion limit / **Upper flammability limit** No data available
Flash point	10 °C Method: (closed cup)
Auto-ignition temperature	No data available
Decomposition temperature	**Thermal decomposition** No data available
pH	No data available
Viscosity	**Viscosity, kinematic**

	< 20.5 mm2/s (25 °C)
Solubility(ies)	**Water solubility** No data available
Partition coefficient: n-octanol/water	No data available
Vapour pressure	No data available
Density and / or relative density	**Density** 1.2 g/cm3 **Relative density** 1.2
Relative vapour density	No data available
Particle characteristics	**Particle size** Not applicable

9.2 Other information

Oxidizing properties	The substance or mixture is not classified as oxidizing.
Self-heating substances	The substance or mixture is not classified as self heating.
Substances and mixtures, which in contact with water, emit flammable gases	The substance or mixture does not emit flammable gases in contact with water.
Corrosive to metals	Not corrosive to metals
Evaporation rate	No data available
Molecular weight	No data available

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

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not classified as a reactivity hazard.

10.2 Chemical stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: Can react with strong oxidizing agents. Vapours may form explosive mixture with air. Highly flammable liquid and vapour.

10.4 Conditions to avoid: Heat, flames and sparks.

10.5 Incompatible materials: Oxidizing agents

10.6 Hazardous decomposition products: Phenol. Formaldehyde.

SECTION 11: TOXICOLOGICAL INFORMATION

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

11.1 Information on toxicological effects

Acute toxicity

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

Acute toxicity estimate, > 2,000 mg/kg Calculation method

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

Acute toxicity estimate, > 2,000 mg/kg Calculation method

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

Acute toxicity estimate, 4 Hour, vapour, > 20 mg/l Calculation method

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

Product test data not available. Refer to component data.

Serious eye damage/eye irritation
Eye irritation, Category 2

H319: Causes serious eye irritation.
Classification procedure: Calculation method

Product test data not available. Refer to component data.

Respiratory or skin sensitisation
Skin sensitisation, Category 1
H317: May cause an allergic skin reaction.
Classification procedure: Calculation method

Product test data not available. Refer to component data.

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

Product test data not available. Refer to component data.

Carcinogenicity
Carcinogenicity, Category 2
H351: Suspected of causing cancer.
Classification procedure: Calculation method

Product test data not available. Refer to component data.

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

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

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

STOT - single exposure
Specific target organ toxicity - single exposure, Category 3
H336: May cause drowsiness or dizziness.
Classification procedure: Calculation method

Product test data not available. Refer to component data.

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

Product test data not available. Refer to component data.

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

Product test data not available. Refer to component data.

COMPONENTS INFLUENCING TOXICOLOGY:

n-butyl acetate

Acute toxicity (Acute oral toxicity)
LD50, Rat, male, 12,789 mg/kg

LD50 Oral, Rat, female, 10,760 mg/kg

Acute toxicity (Acute dermal toxicity)
LD50, Rabbit, male and female, > 14,112 mg/kg

Acute toxicity (Acute inhalation toxicity)
The LC50 has not been determined.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause severe skin irritation with local redness and discomfort.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation
May cause moderate eye irritation.
Corneal injury is unlikely.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Respiratory or skin sensitisation
Did not cause allergic skin reactions when tested in guinea pigs.
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative.

Carcinogenicity
No relevant data found.

Reproductive toxicity
Toxicity to reproduction assessment :
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, did not interfere with fertility. No toxicity to reproduction

Assessment Teratogenicity:
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

STOT - single exposure
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Nervous system

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

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

Methyl ethyl ketone

Acute toxicity (Acute oral toxicity)
LD50, Rat, 2,193 mg/kg

Acute toxicity (Acute dermal toxicity)
LD50, Rabbit, > 8,049 mg/kg

Acute toxicity (Acute inhalation toxicity)
LC50, Mouse, 4 Hour, vapour, 32 mg/l

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause moderate skin irritation with local redness.
Repeated contact may cause moderate skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation
May cause pain disproportionate to the level of irritation to eye tissues.
May cause moderate eye irritation which may be slow to heal.
May cause moderate corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.

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

For respiratory sensitization:
No relevant data found.

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

Carcinogenicity
Available data are inadequate to evaluate carcinogenicity.

Reproductive toxicity
Toxicity to reproduction assessment :
For similar material(s): In animal studies, did not interfere with reproduction.

Assessment Teratogenicity:
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

STOT - single exposure
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Nervous system

STOT - repeated exposure
Methyl ethyl ketone has caused liver effects in laboratory animals exposed by inhalation to high concentrations.
Methyl ethyl ketone is probably not neurotoxic in itself but it potentiates the neurotoxicity of methyl-n-butyl ketone and n-hexane.

Aspiration Hazard
May be harmful if swallowed and enters airways.

antimony trioxide

Acute toxicity (Acute oral toxicity)
LD50, Rat, > 20,000 mg/kg

Acute toxicity (Acute dermal toxicity)
LD50, Rabbit, > 8,300 mg/kg

Acute toxicity (Acute inhalation toxicity)
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration. LC50, Rat, 4 Hour, dust/mist, > 5.2 mg/l OECD Test Guideline 403

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

Serious eye damage/eye irritation
May cause slight temporary eye irritation.

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

For respiratory sensitization:
No data available

Germ cell mutagenicity
In vitro genetic toxicity studies were negative in some cases and positive in other cases.
Animal genetic toxicity studies were negative in some cases and positive in other cases.
Information given is based on data obtained from similar substances.

Carcinogenicity
Animal experiments showed a statistically significant number of tumours.

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

Assessment Teratogenicity:
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

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

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

Aspiration Hazard
No aspiration toxicity classification

ethanol

Acute toxicity (Acute oral toxicity)
LD50, Rat, 10,470 mg/kg OECD Test Guideline 401

Acute toxicity (Acute dermal toxicity)
The dermal LD50 has not been determined.

Acute toxicity (Acute inhalation toxicity)
LC50, Rat, 4 Hour, vapour, 124.7 mg/l OECD Test Guideline 403

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

Serious eye damage/eye irritation
May cause moderate eye irritation.

Respiratory or skin sensitisation
Did not cause allergic skin reactions when tested in guinea pigs.
Information given is based on data obtained from similar substances.

Did not cause allergic respiratory reaction in animal tests.

Germ cell mutagenicity
Animal genetic toxicity studies were negative in some cases and positive in other cases. In vitro genetic toxicity studies were predominantly negative. Information given is based on data obtained from similar substances.

Carcinogenicity
Animal testing did not show any carcinogenic effects. For similar material(s):

Reproductive toxicity
Toxicity to reproduction assessment :
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Assessment Teratogenicity:
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

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

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

Aspiration Hazard
The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

methanol

Acute toxicity (Acute oral toxicity)
Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart. Effects may be delayed. LD50, Rat, > 5,000 mg/kg

Lethal Dose, Humans, 340 mg/kg Estimated.

Lethal Dose, Humans, 29 - 237 ml Estimated.

Acute toxicity estimate, 100 mg/kg Acute toxicity estimate according to Regulation

Acute toxicity (Acute dermal toxicity)
Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death. Acute toxicity estimate, 300 mg/kg

Acute toxicity (Acute inhalation toxicity)
Easily attainable vapor concentrations may cause serious adverse effects, even death. At lower concentrations: May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Inhalation of methanol may cause effects ranging from headache,

narcosis and visual impairment to metabolic acidosis, blindness, and even death. Effects may be delayed.

Acute toxicity estimate, Not tested on animals, 4 Hour, vapour, 3 mg/l

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

Serious eye damage/eye irritation
May cause eye irritation.

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

For respiratory sensitization:
No relevant data found.

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

Carcinogenicity
Did not cause cancer in laboratory animals.

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

Assessment Teratogenicity:
Has caused birth defects in lab animals at high doses. There is no evidence that these findings are relevant to humans.

STOT - single exposure
Causes damage to organs.
Route of Exposure: Oral
Target Organs: Eyes, Central nervous system

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

Aspiration Hazard
May be harmful if swallowed and enters airways.

Cobalt bis(ethylhexanoate)

Acute toxicity (Acute oral toxicity)
LD50, Rat, 3,129 mg/kg OECD Test Guideline 425

Acute toxicity (Acute dermal toxicity)

Information given is based on data obtained from similar substances. LD50, Guinea pig, 5,690 mg/kg OECD Test Guideline 402

Acute toxicity (Acute inhalation toxicity)
The LC50 has not been determined.

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

Serious eye damage/eye irritation
May cause moderate eye irritation.

Respiratory or skin sensitisation
Has demonstrated the potential for contact allergy in mice.

Does not cause respiratory sensitisation.

Germ cell mutagenicity
Animal genetic toxicity studies were negative. In vitro genetic toxicity studies were negative in some cases and positive in other cases. Information given is based on data obtained from similar substances.

Carcinogenicity
Available data are inadequate to evaluate carcinogenicity.

Reproductive toxicity
Toxicity to reproduction assessment :
In animal studies, has been shown to interfere with fertility. Information given is based on data obtained from similar substances.

Assessment Teratogenicity:
Has been toxic to the fetus in laboratory animal tests. Information given is based on data obtained from similar substances.

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

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.
Information given is based on data obtained from similar substances.

Aspiration Hazard
No aspiration toxicity classification

formaldehyde

Acute toxicity (Acute oral toxicity)
Acute toxicity estimate, Not tested on animals, 100 mg/kg Acute toxicity estimate according to Regulation

Acute toxicity (Acute dermal toxicity)
LD50, Rabbit, 270 mg/kg

Acute toxicity (Acute inhalation toxicity)
LC50, Rat, 4 Hour, gas, 463 ppm OECD Test Guideline 403

Skin corrosion/irritation
Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Serious eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Respiratory or skin sensitisation
Has caused allergic skin reactions when tested in guinea pigs.

Did not cause allergic respiratory reaction in animal tests.

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

Carcinogenicity
Animal experiments showed a statistically significant number of tumours.

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

Assessment Teratogenicity:
Did not cause birth defects or any other fetal effects in laboratory animals.

STOT - single exposure
May cause respiratory irritation.
Target Organs: Respiratory system

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

Aspiration Hazard
No aspiration toxicity classification

Molybdenum disulfide

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

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

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause slight skin irritation with local redness.

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

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

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
For similar material(s): In vitro genetic toxicity studies were negative.

Carcinogenicity
No relevant data found.

Reproductive toxicity
Toxicity to reproduction assessment :
No relevant data found.

Assessment Teratogenicity:
No relevant data found.

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

STOT - repeated exposure
No relevant data found.

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

Further information

No data available

SECTION 12: ECOLOGICAL INFORMATION

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

12.1 Toxicity

n-butyl acetate

Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 18 mg/l

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), 48 Hour, 44 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate inhibition, 648 mg/l

Toxicity to bacteria
EC50, Bacteria, 16 Hour, > 1,000 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, 23 mg/l

Methyl ethyl ketone

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 2,993 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 308 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (microalgae), static test, 96 Hour, Growth rate inhibition, 2,029 mg/l, OECD Test Guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), 96 Hour, 1,240 mg/l, OECD Test Guideline 201

Toxicity to bacteria
EC50, Bacteria, 96 Hour, > 1,000 mg/l, hUCC

antimony trioxide

Acute toxicity to fish
Information given is based on data obtained from similar substances.
LC50, Pimephales promelas (fathead minnow), 96 Hour, 14.4 mg/l

Acute toxicity to aquatic invertebrates
Information given is based on data obtained from similar substances.
LC50, Other, 96 Hour, 1.77 mg/l

Acute toxicity to algae/aquatic plants
Information given is based on data obtained from similar substances.
EC50, Raphidocelis subcapitata (freshwater green alga), 72 Hour, > 36.6 mg/l, OECD Test Guideline 201

Information given is based on data obtained from similar substances.
NOEC, Raphidocelis subcapitata (freshwater green alga), 72 Hour, 2.11 mg/l, OECD Test Guideline 201

Chronic toxicity to fish
Information given is based on data obtained from similar product.
NOEC, Pimephales promelas (fathead minnow), 28 d, 4.5 mg/l

Chronic toxicity to aquatic invertebrates
Information given is based on data obtained from similar product.
NOEC, Daphnia magna (Water flea), 21 d, 3.13 mg/l

ethanol

Acute toxicity to fish
LC50, Pimephales promelas (fathead minnow), 96 Hour, 15,300 mg/l

Acute toxicity to aquatic invertebrates
LC50, Ceriodaphnia dubia (water flea), 48 Hour, 5,012 mg/l

Acute toxicity to algae/aquatic plants
EC50, Chlorella vulgaris (Fresh water algae), 96 Hour, 675 mg/l, OECD Test Guideline 201
NOEC, Chlorella vulgaris (Fresh water algae), 96 Hour, 86 mg/l, OECD Test Guideline 201

Chronic toxicity to fish
NOEC, Danio rerio (zebra fish), 120 Hour, 1,000 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Ceriodaphnia dubia (water flea), 10 d, 9.6 mg/l

methanol

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Bluegill sunfish (Lepomis macrochirus), flow-through test, 96 Hour, 15,400 mg/l

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), 48 Hour, 18,260 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate, 22,000 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
IC50, activated sludge, 3 Hour, Respiration rates., > 1,000 mg/l, OECD Test Guideline 209

Chronic toxicity to fish
NOEC, Pimephales promelas (fathead minnow), 28 d, 446 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, 208 mg/l

Cobalt bis(ethylhexanoate)

Acute toxicity to fish
Information given is based on data obtained from similar substances.
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 0.8 mg/l

Acute toxicity to aquatic invertebrates
Information given is based on data obtained from similar substances.
LC50, Ceriodaphnia dubia (water flea), 48 Hour, 0.605 mg/l

Acute toxicity to algae/aquatic plants
Information given is based on data obtained from similar substances.
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.0952 mg/l, OECD Test Guideline 201
Information given is based on data obtained from similar substances.
NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.0345 mg/l, OECD Test Guideline 201

Toxicity to bacteria
Based on data from similar materials
EC50, 30 min, 120 mg/l, OECD Test Guideline 209

Chronic toxicity to fish
Based on data from similar materials
NOEC, Pimephales promelas (fathead minnow), 34 d, 0.21 mg/l

Chronic toxicity to aquatic invertebrates
Based on data from similar materials
NOEC, Daphnia magna (Water flea), 21 d, 0.0608 mg/l

formaldehyde

Acute toxicity to fish
LC50, Pimephales promelas (fathead minnow), 96 Hour, 24.1 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
EC50, Daphnia pulex (Water flea), 48 Hour, 5.8 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
EC50, Desmodesmus subspicatus (green algae), 72 Hour, 4.89 mg/l, OECD Test Guideline 201
NOEC, Raphidocelis subcapitata (freshwater green alga), 48 Hour, 1.06 mg/l

Toxicity to bacteria
EC50, activated sludge, 3 Hour, 19.6 mg/l, OECD 209 Test

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, 1.04 mg/l

Molybdenum disulfide

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
For similar material(s):
LC50, Fish, 96 Hour, > 100 mg/l

Acute toxicity to aquatic invertebrates
Based on data from similar materials
EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

Acute toxicity to algae/aquatic plants
Based on data from similar materials
ErC50, algae, 72 Hour, Growth rate, > 100 mg/l

Toxicity to bacteria
EC50, 30 Hour, Respiration rates., > 100 mg/l

Chronic toxicity to fish
Based on data from similar materials
NOEC, Fish, 34 d, > 10 mg/l

Chronic toxicity to aquatic invertebrates
Based on data from similar materials
NOEC, Daphnia magna, 21 d, > 10 mg/l

12.2 Persistence and degradability

n-butyl acetate
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 83 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.20 mg/mg Estimated.

Photodegradation
Sensitization: OH radicals
Atmospheric half-life: 2.32 d
Method: Estimated.

Methyl ethyl ketone
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 98 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.44 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	71 - 76 %
10 d	71 - 82 %
20 d	71 - 89 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 8 d
Method: Estimated.

antimony trioxide

Biodegradability: Not applicable

ethanol

Biodegradability: Readily biodegradable.

Biodegradation: 84 %
Exposure time: 20 d

Theoretical Oxygen Demand: 2.08 mg/mg

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 2.99 d
Method: Estimated.

methanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 82.7 %
Exposure time: 5 d
Method: OECD Test Guideline 301D or Equivalent

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	72 %
20 d	79 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 8 - 18 d
Method: Estimated.

Cobalt bis(ethylhexanoate)
Biodegradability: Not applicable

formaldehyde
Biodegradability: Readily biodegradable.

Biodegradation: 99 %
Exposure time: 28 d
Method: OECD Test Guideline 301A

Theoretical Oxygen Demand: 1.07 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	> 100 %
10 d	> 100 %
20 d	> 100 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 15.8 Hour
Method: Estimated.

Molybdenum disulfide
Biodegradability: Biodegradability is not applicable to inorganic substances.

12.3 Bioaccumulative potential

n-butyl acetate
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): Pow: 3.2 at 25 °C Measured
Bioconcentration factor (BCF): 15 Fish Estimated.

Methyl ethyl ketone
Bioaccumulation: Bioaccumulation is unlikely. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.3 at 40 °C Measured

antimony trioxide

Bioaccumulation: Bioaccumulation is unlikely. Not applicable
Bioconcentration factor (BCF): 40 estimated

ethanol

Bioaccumulation: Bioaccumulation is unlikely. Information given is based on data obtained from similar substances.
Partition coefficient: n-octanol/water(log Pow): ca.-0.35 at 24 °C OECD Test Guideline 107

methanol

Bioaccumulation: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water(log Pow): -0.77
Bioconcentration factor (BCF): < 10 Leuciscus idus (Golden orfe) Measured

Cobalt bis(ethylhexanoate)

Bioaccumulation: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water(log Pow): 2.96 at 20 °C

formaldehyde

Bioaccumulation: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water(log Pow): 0.35 at 25 °C

Molybdenum disulfide

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

12.4 Mobility in soil

n-butyl acetate

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
Koc: 19 - 70
Method: Estimated.

Methyl ethyl ketone

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
Koc: 3.8
Method: Estimated.

antimony trioxide

Mobility in soil: Not applicable

ethanol

No data available

methanol

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
Koc: 0.44
Method: Estimated.

Cobalt bis(ethylhexanoate)

Mobility in soil: Not applicable

formaldehyde

Mobility in soil: Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Koc: 1
Method: Estimated.

Molybdenum disulfide

Mobility in soil: No relevant data found.

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

n-butyl acetate

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

Methyl ethyl ketone

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

antimony trioxide

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).
Not applicable to inorganic substances.

ethanol

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

methanol

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

Cobalt bis(ethylhexanoate)

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).
Not applicable to inorganic substances.

formaldehyde

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

Molybdenum disulfide

Not persistent, bioaccumulative, and toxic (PBT).
Not very persistent and very bioaccumulative (vPvB).

12.6 Other adverse effects

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

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

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

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

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

Cobalt bis(ethylhexanoate)
No relevant data found.

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

Molybdenum disulfide
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 1993
14.2	**UN proper shipping name**	FLAMMABLE LIQUID, N.O.S.(Butanone, Ethanol)
14.3	**Transport hazard class(es)**	3

14.4	**Packing group**	II
14.5	**Environmental hazards**	Not considered environmentally hazardous based on available data.
14.6	**Special precautions for user**	Special Provision 640D Hazard Identification Number: 33

Classification for SEA transport (IMO-IMDG):

14.1	**UN number**	UN 1993
14.2	**UN proper shipping name**	FLAMMABLE LIQUID, N.O.S.(Butanone, Ethanol)
14.3	**Transport hazard class(es)**	3
14.4	**Packing group**	II
14.5	**Environmental hazards**	Not considered as marine pollutant based on available data.
14.6	**Special precautions for user**	EmS: F-E, S-E
14.7	**Transport in bulk according to Annex II of Marpol and the IBC Code**	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1	**UN number**	UN 1993
14.2	**UN proper shipping name**	Flammable liquid, n.o.s.(Butanone, Ethanol)
14.3	**Transport hazard class(es)**	3
14.4	**Packing group**	II
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

UK REACH List of restrictions (Annex 17)

The following substance/s contained in this product is/are subject through Annex XVII of UK 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.: 67-56-1	Name: methanol

Restriction status: listed in UK REACH Annex XVII
Restricted uses: See UK Restrictions under REACH (https://www.hse.gov.uk/reach/list-of-restrictions.xlsx)
Number on the list: 69

CAS-No.: 50-00-0	Name: formaldehyde

Restriction status: listed in UK REACH Annex XVII
Restricted uses: See UK Restrictions under REACH (https://www.hse.gov.uk/reach/list-of-restrictions.xlsx)
Number on the list: 28, 72

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

P5c	FLAMMABLE LIQUIDS	Lower-tier Quantity:	5,000 t
		Upper-tier Quantity:	50,000 t

15.2 Chemical safety assessment

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

SECTION 16: OTHER INFORMATION

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

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.

H350	May cause cancer.
H351	Suspected of causing cancer.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H370	Causes damage to organs.
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 as amended by GB-CLP Regulation, UK SI 2019/720, and subsequent amendments

Flam. Liq. - 2 - H225 - Based on product data or assessment
Eye Irrit. - 2 - H319 - Calculation method
Skin Sens. - 1 - H317 - Calculation method
Carc. - 2 - H351 - Calculation method
STOT SE - 3 - H336 - Calculation method
Aquatic Chronic - 3 - H412 - Calculation method

Revision

Identification Number: 3313441 / A670 / Issue Date: 20.11.2025 / Version: 15.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

GB EH40	UK. EH40 WEL - Workplace Exposure Limits
GB EH40 BAT	UK. Biological monitoring guidance values
STEL	Short-term exposure limit (15-minute reference period)
TWA	Long-term exposure limit (8-hour TWA reference period)
Acute Tox.	Acute toxicity
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
Muta.	Germ cell mutagenicity
Repr.	Reproductive toxicity
Skin Corr.	Skin corrosion
Skin Sens.	Skin sensitisation
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations

GB CLP - REGULATION (EC) No 1272/2008 as amended by GB-CLP Regulation, UK SI 2019/720, UK SI 2020/1567, and subsequent amendments; UK-REACH - REACH Regulation (EC) No 1907/2006, as amended by UK REACH, UK SI 2019/758 and subsequent amendments; ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No

1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

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

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