

## MOLYKOTE(R) D-321 R SPRAY

Version 1.0      Revision Date: 17.02.2015      MSDS Number: 1368875-00001      Date of last issue: -  
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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : MOLYKOTE(R) D-321 R SPRAY

Product code : 000000000001659766

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

Use of the Sub-stance/Mixture : Lubricants and lubricant additives

#### 1.3 Details of the supplier of the safety data sheet

Company : Dow Corning Europe S.A.  
rue Jules Bordet - Parc Industriel - Zone C  
B-7180 Seneffe

Telephone : English Tel: +49 611237507  
Deutsch Tel: +49 611237500  
Français Tel: +32 64511149  
Italiano Tel: +32 64511170  
Español Tel: +32 64511163

E-mail address of person responsible for the SDS : sdseu@dowcorning.com

#### 1.4 Emergency telephone number

Dow Corning (Barry U.K. 24h) Tél: +44 1446732350  
Dow Corning (Wiesbaden 24h) Tél: +49 61122158  
Dow Corning (Seneffe 24h) Tel: +32 64 888240

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Aerosols, Category 1	H222: Extremely flammable aerosol.
	H229: Pressurised container: May burst if heated.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Chronic aquatic toxicity, Category 3	H412: Harmful to aquatic life with long lasting effects.

##### Classification (67/548/EEC, 1999/45/EC)

Extremely flammable	R12: Extremely flammable.
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Dangerous for the environment

R67: Vapours may cause drowsiness and dizziness.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H222 Extremely flammable aerosol.  
H229 Pressurised container: May burst if heated.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P211 Do not spray on an open flame or other ignition source.  
P251 Do not pierce or burn, even after use.  
P260 Do not breathe spray.  
P271 Use only outdoors or in a well-ventilated area.

**Storage:**  
P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

Hazardous components which must be listed on the label:  
Naphtha (petroleum), hydrodesulfurized heavy

### 2.3 Other hazards

None known.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Chemical nature : Molybdenum disulfide aerosol

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**Hazardous components**

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration (%)
n-Butyl acetate	123-86-4 204-658-1 01- 2119485493-29	R10 R66-R67	Flam. Liq. 3; H226 STOT SE 3; H336	>= 10 - < 15
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1 265-185-4	R10 Xn; R48/20 Xn; R65 N; R51/53 R66-R67	Flam. Liq. 3; H226 STOT SE 3; H336 STOT RE 1; H372 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 2.5 - < 10
Polybutyl titanate	9022-96-2	Xi; R36	Flam. Liq. 3; H226 Eye Irrit. 2; H319	>= 3 - < 10
Zinc oxide	1314-13-2 215-222-5 01- 2119463881-32	N; R50-R53	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0.1 - < 0.25

For explanation of abbreviations see section 16.

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
- If inhaled : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.
- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.  
Get medical attention if symptoms occur.
- In case of eye contact : Flush eyes with water as a precaution.  
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.  
Get medical attention if symptoms occur.  
Rinse mouth thoroughly with water.

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### 4.2 Most important symptoms and effects, both acute and delayed

Risks : May cause damage to organs through prolonged or repeated exposure.

### 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Dry chemical  
Carbon dioxide (CO<sub>2</sub>)

Unsuitable extinguishing media : None known.

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Flash back possible over considerable distance.  
Vapours may form explosive mixtures with air.  
Exposure to combustion products may be a hazard to health.  
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.

Hazardous combustion products : Carbon oxides  
Metal oxides  
Sulphur oxides

### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

Specific extinguishing methods : 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.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Remove all sources of ignition.  
Use personal protective equipment.  
Follow safe handling advice and personal protective equipment recommendations.

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### 6.2 Environmental precautions

Environmental precautions : Discharge into the environment must be avoided.  
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 material for containment and cleaning up

Methods for 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.  
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.  
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.  
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

### 7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.  
Use only in an area equipped with explosion proof exhaust ventilation.

Advice on safe handling : Avoid inhalation of vapour or mist.  
Do not swallow.  
Avoid contact with eyes.  
Avoid prolonged or repeated contact with skin.  
Handle in accordance with good industrial hygiene and safety practice.  
Keep away from water.  
Protect from moisture.  
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



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environment.

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

**7.2 Conditions for safe storage, including any incompatibilities**

Requirements for storage areas and containers : Keep in properly labelled containers. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Do not pierce or burn, even after use. Keep cool. Protect from sunlight.

Advice on common storage : Do not store with the following product types:  
Self-reactive substances and mixtures  
Organic peroxides  
Oxidizing agents  
Flammable solids  
Pyrophoric liquids  
Pyrophoric solids  
Self-heating substances and mixtures  
Substances and mixtures, which in contact with water, emit flammable gases  
Explosives

**7.3 Specific end use(s)**

Specific use(s) : For further information regarding the use of silicones / organic oils in consumer aerosol applications, please refer to the guidance document regarding the use of these type of materials in consumer aerosol applications that has been developed by the silicone industry ([www.SEHSC.com](http://www.SEHSC.com)) or contact the Dow Corning customer service group.

**SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters**

**Occupational Exposure Limits**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Butane	106-97-8	STEL	750 ppm 1,810 mg/m3	GB EH40
Further information	Capable of causing cancer and/or heritable genetic damage. The identified substances include those which: - are assigned the risk phrases 'R45: May cause cancer'; 'R46: may cause heritable genetic damage'; 'R49: May cause cancer by inhalation' or - a substance or process listed in Schedule 1 of COSHH., Carcinogenic only applies if butane contains more than 0.1% of buta-1,3-diene			
		TWA	600 ppm 1,450 mg/m3	GB EH40
Further information	Capable of causing cancer and/or heritable genetic damage. The identified			



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n-Butyl acetate	123-86-4	TWA	150 ppm 724 mg/m3	GB EH40
		STEL	200 ppm 966 mg/m3	GB EH40
Molybdenum sul-fide	1317-33-5	TWA	10 mg/m3 (Molybdenum)	GB EH40
		STEL	20 mg/m3 (Molybdenum)	GB EH40
Graphite	7782-42-5	TWA (inhalable dust)	10 mg/m3	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
		TWA (Respirable dust)	4 mg/m3	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne			



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	material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used
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**Occupational exposure limits of decomposition products**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Butan-1-ol	71-36-3	STEL	50 ppm 154 mg/m3	GB EH40
Further information	Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

n-Butyl acetate : End Use: Workers  
 Exposure routes: Inhalation  
 Potential health effects: Acute systemic effects  
 Value: 960 mg/m3  
 End Use: Workers  
 Exposure routes: Inhalation  
 Potential health effects: Acute local effects  
 Value: 960 mg/m3  
 End Use: Workers  
 Exposure routes: Inhalation  
 Potential health effects: Long-term systemic effects  
 Value: 480 mg/m3  
 End Use: Workers  
 Exposure routes: Inhalation  
 Potential health effects: Long-term local effects  
 Value: 480 mg/m3  
 End Use: Consumers  
 Exposure routes: Inhalation  
 Potential health effects: Acute systemic effects  
 Value: 859.7 mg/m3  
 End Use: Consumers  
 Exposure routes: Inhalation  
 Potential health effects: Acute local effects  
 Value: 859.7 mg/m3  
 End Use: Consumers  
 Exposure routes: Inhalation  
 Potential health effects: Long-term systemic effects  
 Value: 102.34 mg/m3  
 End Use: Consumers  
 Exposure routes: Inhalation  
 Potential health effects: Long-term local effects  
 Value: 102.34 mg/m3

Graphite : End Use: Consumers  
 Exposure routes: Inhalation  
 Potential health effects: Long-term local effects  
 Value: 0.3 mg/m3  
 End Use: Consumers





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Zinc oxide : Exposure routes: Ingestion  
Potential health effects: Long-term systemic effects  
Value: 813 mg/kg bw/day  
End Use: Workers  
Exposure routes: Inhalation  
Potential health effects: Long-term local effects  
Value: 1.2 mg/m<sup>3</sup>  
End Use: Workers  
Exposure routes: Skin contact  
Potential health effects: Long-term systemic effects  
Value: 83 mg/kg bw/day  
End Use: Workers  
Exposure routes: Inhalation  
Potential health effects: Long-term systemic effects  
Value: 5 mg/m<sup>3</sup>  
End Use: Consumers  
Exposure routes: Skin contact  
Potential health effects: Long-term systemic effects  
Value: 83 mg/kg bw/day  
End Use: Consumers  
Exposure routes: Inhalation  
Potential health effects: Long-term systemic effects  
Value: 2.5 mg/m<sup>3</sup>  
End Use: Consumers  
Exposure routes: Ingestion  
Potential health effects: Long-term systemic effects  
Value: 0.83 mg/kg bw/day

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

n-Butyl acetate : Fresh water  
Value: 0.18 mg/l  
Marine water  
Value: 0.018 mg/l  
Intermittent use/release  
Value: 0.36 mg/l  
Sewage treatment plant  
Value: 35.6 mg/l  
Fresh water sediment  
Value: 0.981 mg/kg  
Marine sediment  
Value: 0.0981 mg/kg  
Soil  
Value: 0.0903 mg/kg

Zinc oxide : Fresh water  
Value: 20.6 µg/l  
Marine water  
Value: 6.1 µg/l  
Sewage treatment plant  
Value: 52 µg/l  
Fresh water sediment  
Value: 117.8 mg/kg  
Marine sediment  
Value: 56.5 mg/kg  
Soil

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Value: 35.6 mg/kg

### 8.2 Exposure controls

#### Engineering measures

Processing may form hazardous compounds (see section 10).  
Ensure adequate ventilation, especially in confined areas.  
Minimize workplace exposure concentrations.  
Use only in an area equipped with explosion proof exhaust ventilation.

#### Personal protective equipment

Eye protection	: Wear the following personal protective equipment: Safety goggles
Hand protection	
Material	: Impervious gloves Flame retardant gloves
Remarks	: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
Skin and body protection	: Wear the following personal protective equipment: Flame retardant antistatic protective clothing.
Respiratory protection	: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
Filter type	: Self-contained breathing apparatus

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	: Aerosol containing a dissolved gas
Colour	: black
Odour	: solvent-like
Odour Threshold	: No data available
pH	: Not applicable
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: Not applicable

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Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Extremely flammable aerosol.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	1.05
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	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
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## 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

Hazardous reactions	:	Extremely flammable aerosol. Vapours may form explosive mixture with air. If the temperature rises there is danger of the vessels bursting due to the high vapor pressure. Can react with strong oxidizing agents.
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Hazardous decomposition products will be formed upon contact with water or humid air.

### 10.4 Conditions to avoid

Conditions to avoid : Exposure to moisture  
Heat, flames and sparks.

### 10.5 Incompatible materials

Materials to avoid : Oxidizing agents  
Water

### 10.6 Hazardous decomposition products

Contact with water or humid air : Butan-1-ol

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion  
Eye contact

#### Acute toxicity

Not classified based on available information.

#### Components:

##### **n-Butyl acetate:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 21.1 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg  
Method: OECD Test Guideline 402

##### **Naphtha (petroleum), hydrodesulfurized heavy:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 13.1 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Based on data from similar materials

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Acute dermal toxicity : LD50 (Rat): > 4,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on data from similar materials

**Zinc oxide:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 5.7 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**n-Butyl acetate:**

Assessment: Repeated exposure may cause skin dryness or cracking.

**Naphtha (petroleum), hydrodesulfurized heavy:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation  
Remarks: Based on data from similar materials

Assessment: Repeated exposure may cause skin dryness or cracking.

**Zinc oxide:**

Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:**

**n-Butyl acetate:**

Species: Rabbit  
Method: OECD Test Guideline 405  
Result: No eye irritation

**Naphtha (petroleum), hydrodesulfurized heavy:**

Species: Rabbit  
Method: OECD Test Guideline 405  
Result: No eye irritation  
Remarks: Based on data from similar materials

**Polybutyl titanate:**

Result: Irritation to eyes, reversing within 21 days

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**Zinc oxide:**

Species: Rabbit  
Method: OECD Test Guideline 405  
Result: No eye irritation

**Respiratory or skin sensitisation**

Skin sensitisation: Not classified based on available information.  
Respiratory sensitisation: Not classified based on available information.

**Components:**

**n-Butyl acetate:**

Test Type: Buehler Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: negative

**Naphtha (petroleum), hydrodesulfurized heavy:**

Test Type: Maximisation Test (GPMT)  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: negative  
Remarks: Based on data from similar materials

**Zinc oxide:**

Test Type: Maximisation Test (GPMT)  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: negative

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**n-Butyl acetate:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

: Test Type: Chromosome aberration test in vitro  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo  
cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

**Naphtha (petroleum), hydrodesulfurized heavy:**

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro

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Result: negative  
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Inhalation  
Result: negative  
Remarks: Based on data from similar materials

**Zinc oxide:**  
Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Rat  
Application Route: Inhalation  
Method: OECD Test Guideline 474  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Components:**

**Naphtha (petroleum), hydrodesulfurized heavy:**

Species: Rat  
Application Route: inhalation (vapour)  
Exposure time: 13 weeks  
Result: negative  
Remarks: Based on data from similar materials

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**n-Butyl acetate:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapour)  
Method: OECD Test Guideline 416  
Result: negative

**Naphtha (petroleum), hydrodesulfurized heavy:**

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative  
Remarks: Based on data from similar materials

Effects on foetal develop- : Test Type: Embryo-foetal development

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ment      Species: Rat  
Application Route: inhalation (vapour)  
Result: negative  
Remarks: Based on data from similar materials

**Zinc oxide:**

Effects on fertility      : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 416  
Result: negative

Effects on foetal develop-      : Test Type: Embryo-foetal development  
ment      Species: Hamster  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

**STOT - single exposure**

Not classified based on available information.

**Components:**

**n-Butyl acetate:**

Assessment: May cause drowsiness or dizziness.

**Naphtha (petroleum), hydrodesulfurized heavy:**

Assessment: May cause drowsiness or dizziness.

**STOT - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

**Components:**

**Naphtha (petroleum), hydrodesulfurized heavy:**

Exposure routes: Inhalation

Target Organs: Central nervous system

Assessment: Causes damage to organs through prolonged or repeated exposure.

**Zinc oxide:**

Exposure routes: inhalation (dust/mist/fume)

Assessment: No significant health effects observed in animals at concentrations of 0.2 mg/l/6h/d or less.

**Repeated dose toxicity**

**Components:**

**n-Butyl acetate:**

Species: Rat

NOAEL: 2.4 mg/l

Application Route: inhalation (vapour)

Exposure time: 90 d

**Naphtha (petroleum), hydrodesulfurized heavy:**



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Species: Rat  
NOAEL: 2.34 mg/l  
LOAEL: 4.67 mg/l  
Application Route: inhalation (vapour)  
Exposure time: 6 m  
Method: OECD Test Guideline 413  
Remarks: Based on data from similar materials

**Zinc oxide:**

Species: Rat  
NOAEL: 1.5 mg/m<sup>3</sup>  
Application Route: inhalation (dust/mist/fume)  
Exposure time: 3 m  
Method: OECD Test Guideline 413

**Aspiration toxicity**

Not classified based on available information.

**Components:**

**Naphtha (petroleum), hydrodesulfurized heavy:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Experience with human exposure**

**Components:**

**Naphtha (petroleum), hydrodesulfurized heavy:**

Inhalation : Target Organs: Central nervous system  
Symptoms: Dizziness, Headache, Neurological disorders

---

## SECTION 12: Ecological information

### 12.1 Toxicity

**Components:**

**n-Butyl acetate:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 18 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 44 mg/l  
Exposure time: 48 h

Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): 674.7 mg/l  
Exposure time: 72 h

NOEC (Desmodesmus subspicatus (green algae)): 200 mg/l  
Exposure time: 72 h

Toxicity to bacteria : IC50 (Protozoa): 356 mg/l  
Exposure time: 40 h

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 23 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

### **Naphtha (petroleum), hydrodesulfurized heavy:**

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 10 - 30 mg/l  
Exposure time: 96 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 203  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 10 - 22 mg/l  
Exposure time: 48 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials

Toxicity to algae : EL50 (Pseudokirchneriella subcapitata (green algae)): 4.6 - 10 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

NOELR (Pseudokirchneriella subcapitata (green algae)): 0.22 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR: 0.097 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Remarks: Based on data from similar materials

### **Zinc oxide:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 330 - 780 µg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 6.9 - 16.2 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 136 µg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Selenastrum capricornutum (green algae)): 24 µg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

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M-Factor (Acute aquatic toxicity) : 1

Toxicity to bacteria : EC50 : 5.2 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209  
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : NOEC: 199 µg/l  
Exposure time: 30 d  
Species: Oncorhynchus mykiss (rainbow trout)  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 37 µg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic toxicity) : 1

**12.2 Persistence and degradability**

**Components:**

**n-Butyl acetate:**

Biodegradability : Result: Readily biodegradable  
Biodegradation: 96 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

**Naphtha (petroleum), hydrodesulfurized heavy:**

Biodegradability : Result: Readily biodegradable  
Biodegradation: 74.7 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F  
Remarks: Based on data from similar materials

**Polybutyl titanate:**

Biodegradability : Result: Not readily biodegradable.

**12.3 Bioaccumulative potential**

**Components:**

**n-Butyl acetate:**

Partition coefficient: n-octanol/water : log Pow: 2.3

**Naphtha (petroleum), hydrodesulfurized heavy:**

Partition coefficient: n-octanol/water : log Pow: > 4  
Remarks: Based on data from similar materials

**Zinc oxide:**

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Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 177

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

Not relevant

### 12.6 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.  
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.  
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging : Dispose of as unused product.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not burn.  
Please ensure aerosol cans are sprayed completely empty (including propellant)

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## SECTION 14: Transport information

### 14.1 UN number

ADN : UN 1950  
ADR : UN 1950  
RID : UN 1950  
IMDG : UN 1950  
IATA : UN 1950

### 14.2 UN proper shipping name

ADN : AEROSOLS  
ADR : AEROSOLS  
RID : AEROSOLS  
IMDG : AEROSOLS  
IATA : Aerosols, flammable

### 14.3 Transport hazard class(es)



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**ADN** : 2.1  
**ADR** : 2.1  
**RID** : 2.1  
**IMDG** : 2.1  
**IATA** : 2.1

### 14.4 Packing group

**ADN**  
Packing group : Not assigned by regulation  
Classification Code : 5F  
Labels : 2.1

**ADR**  
Packing group : Not assigned by regulation  
Classification Code : 5F  
Labels : 2.1  
Tunnel restriction code : (D)

**RID**  
Packing group : Not assigned by regulation  
Classification Code : 5F  
Hazard Identification Number : 23  
Labels : 2.1

**IMDG**  
Packing group : Not assigned by regulation  
Labels : 2.1  
EmS Code : F-D, S-U

**IATA**  
Packing instruction (cargo aircraft) : 203  
Packing instruction (passenger aircraft) : 203  
Packing instruction (LQ) : Y203  
Packing group : Not assigned by regulation  
Labels : Flammable Gas

### 14.5 Environmental hazards

**ADN**  
Environmentally hazardous : no

**ADR**  
Environmentally hazardous : no

**RID**  
Environmentally hazardous : no

**IMDG**  
Marine pollutant : no

### 14.6 Special precautions for user

Not applicable



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**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Remarks : Not applicable for product as supplied.

**SECTION 15: Regulatory information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Seveso II - Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances

		Quantity 1	Quantity 2
8	Extremely flammable	10 t	50 t

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
P3a	FLAMMABLE AEROSOLS	150 t	500 t

Seveso II - Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances

		Quantity 1	Quantity 2
13	Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams)	2,500 t	25,000 t

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
34	Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams), (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environ-	2,500 t	25,000 t

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mental hazards as the products referred to in points (a) to (d)

Other regulations : Take note of Dir 94/33/EC on the protection of young people at work.

**The components of this product are reported in the following inventories:**

KECI : All ingredients listed, exempt or notified.

REACH : All ingredients (pre-)registered or exempt.

TSCA : All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

AICS : All ingredients listed or exempt.

IECSC : All ingredients listed or exempt.

PICCS : All ingredients listed or exempt.

ENCS/ISHL : Some components are not listed or not identified on ENCS/ISHL.

DSL : All chemical substances in this product comply with the CEPA 1999 and NSNR and are on or exempt from listing on the Canadian Domestic Substances List (DSL).

NZIoC : All ingredients listed or exempt.

**Inventories**

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), NECSI (Taiwan), TSCA (USA)

**15.2 Chemical Safety Assessment**

A Chemical Safety Assessment has not been carried out.

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### SECTION 16: Other information

#### Full text of R-Phrases

R10	: Flammable.
R36	: Irritating to eyes.
R48/20	: Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R50	: Very toxic to aquatic organisms.
R51/53	: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	: May cause long-term adverse effects in the aquatic environment.
R65	: Harmful: may cause lung damage if swallowed.
R66	: Repeated exposure may cause skin dryness or cracking.
R67	: Vapours may cause drowsiness and dizziness.

#### Full text of H-Statements

H226	: Flammable liquid and vapour.
H304	: May be fatal if swallowed and enters airways.
H319	: Causes serious eye irritation.
H336	: May cause drowsiness or dizziness.
H372	: Causes damage to organs through prolonged or repeated exposure.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.

#### Full text of other abbreviations

Aquatic Acute	: Acute aquatic toxicity
Aquatic Chronic	: Chronic aquatic toxicity
Asp. Tox.	: Aspiration hazard
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
STOT RE	: Specific target organ toxicity - repeated exposure
STOT SE	: Specific target organ toxicity - single exposure
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA	: Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	: Short-term exposure limit (15-minute reference period)

#### Further information

Sources of key data used to compile the Safety Data Sheet	: Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <a href="http://echa.europa.eu/">http://echa.europa.eu/</a>
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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, in-



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cluding an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

GB / EN