

UNIMOLY C 220 Spray

Version 2.0

Revision Date 28.11.2016

Print Date 28.11.2016

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : UNIMOLY C 220 Spray
Article-No. : 081053

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

Use of the Substance/Mixture : Lubricant spray
Recommended restrictions on use : Restricted to professional users.

1.3 Details of the supplier of the safety data sheet

Klüber Lubrication München
Geisenhausenerstr. 7
81379 München
Deutschland
Tel: +49 (0) 89 7876 0
Fax: +49 (0) 89 7876 333
info@klueber.com

E-mail address : mcm@klueber.com
Responsible/issuing person : Material Compliance Management

National contact : Klüber Lubrication Deutschland
Geisenhausenerstraße 7
81379 München
Deutschland
Tel.: +49 89 7876 0
Fax: +49 89 7876 565
www.klueber.com

1.4 Emergency telephone number

+49 89 7876 700 (24 hrs)

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.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.

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Specific target organ toxicity - repeated exposure, Category 2, Central nervous system H373: May cause damage to organs through prolonged or repeated exposure if inhaled.

Chronic aquatic toxicity, Category 3 H412: Harmful to aquatic life with long lasting effects.

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

Extremely flammable
Irritant

R12: Extremely flammable.
R36: Irritating to eyes.
R67: Vapours may cause drowsiness and dizziness.

Dangerous for the environment

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.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.
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 mist.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.

Response:
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

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

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Hazardous components which must be listed on the label:

123-86-4	n-butyl acetate
5593-70-4	titanium tetrabutanolate
64742-82-1	naphtha (petroleum), hydrodesulphurized heavy

2.3 Other hazards

3. Composition/information on ingredients

3.2 Mixtures

Chemical nature : Active agent with propellant and solvent.

Hazardous components

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
titanium tetrabutanolate	5593-70-4 227-006-8	R10 Xi; R37/38 R41 R67	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H336 STOT SE 3; H335	>= 5 - < 10
butan-1-ol	71-36-3 200-751-6 603-004-00-6 / 01- 2119484630- 38-XXXX	R10 Xn; R22 Xi; R37/38-R41 R67	Flam. Liq. 3; H226 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H336 STOT SE 3; H335	>= 1 - < 3
naphtha (petroleum), hydrodesulphurized heavy	64742-82-1 265-185-4 649-330-00-2	R10 R66 Xn; R48/20-R65 R67 N; R51/53	Flam. Liq. 3; H226 STOT SE 3; H336 STOT RE 1; H372 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 1 - < 2,5
solvent naphtha (petroleum), light arom.	64742-95-6 265-199-0 649-356-00-4 / 01- 2119455851- 35-XXXX	R10 Xi; R37 Xn; R65 R66 R67 N; R51/53	Flam. Liq. 3; H226 STOT SE 3; H336 STOT SE 3; H335 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 1 - < 2,5
but-1-ene	106-98-9 203-449-2 601-012-00-4	F+; R12	Flam. Gas 1; H220 Press. Gas Compr. Gas; H280	>= 1 - < 10
butene, mixed-1-and-2- isomers	107-01-7 203-452-9 601-012-00-4	F+; R12	Flam. Gas 1; H220 Press. Gas Compr. Gas; H280	>= 1 - < 10

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propylene	115-07-1 204-062-1 601-011-00-9	F+; R12	Flam. Gas 1; H220 Press. Gas Compr. Gas; H280	>= 1 - < 10
zinc oxide	1314-13-2 215-222-5 030-013-00-7 / 01- 2119463881- 32-XXXX	N; R50-R53	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0,1 - < 0,25
Substances with a workplace exposure limit :				
isobutane	75-28-5 200-857-2 601-004-00-0	F+; R12	Flam. Gas 1; H220 Press. Gas Compr. Gas; H280	>= 50 - < 70
n-butyl acetate	123-86-4 204-658-1 607-025-00-1	R10 R66 R67	Flam. Liq. 3; H226 STOT SE 3; H336	>= 10 - < 20
propane	74-98-6 200-827-9 601-003-00-5	F+; R12	Flam. Gas 1; H220 Press. Gas Compr. Gas; H280	>= 1 - < 10
butane	106-97-8 203-448-7 601-004-00-0	F+; R12	Flam. Gas 1; H220 Press. Gas Compr. Gas; H280	>= 1 - < 10
Graphite	7782-42-5 231-955-3			>= 1 - < 10

For the full text of the R-phrases mentioned in this Section, see Section 16.

For the full text of the H-Statements mentioned in this Section, see Section 16.

Note P:

The classification as a carcinogen or mutagen need not apply if it can be shown that the substance contains less than 0,1 % w/w benzene.

4. First aid measures

4.1 Description of first aid measures

- If inhaled : Call a physician or poison control centre immediately.
Remove person to fresh air. If signs/symptoms continue, get medical attention.
Keep patient warm and at rest.
If unconscious place in recovery position and seek medical advice.
Keep respiratory tract clear.
If breathing is irregular or stopped, administer artificial respiration.
- In case of skin contact : Take off all contaminated clothing immediately.
Wash off immediately with soap and plenty of water.
Get medical attention immediately if irritation develops and persists.

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Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes.
Get medical attention immediately.

If swallowed : Move the victim to fresh air.
If accidentally swallowed obtain immediate medical attention.
Keep respiratory tract clear.
Do NOT induce vomiting.
Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Inhalation may provoke the following symptoms:
Unconsciousness
Dizziness
Drowsiness
Headache
Nausea
Tiredness

Risks : Central nervous system depression

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : ABC powder

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Fire may cause evolution of:
Carbon oxides
Metal oxides
Sulphur oxides

: Fire Hazard
Do not let product enter drains.
Contains gas under pressure; may explode if heated.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.
In the case of respirable dust and/or fumes, use self-contained breathing apparatus.

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Exposure to decomposition products may be a hazard to health.

Further information : Standard procedure for chemical fires.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Cool containers/tanks with water spray.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Evacuate personnel to safe areas.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not breathe vapours or spray mist.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.
Non-sparking tools should be used.

6.4 Reference to other sections

For personal protection see section 8.

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Do not use in areas without adequate ventilation.
Do not breathe vapours or spray mist.
In case of insufficient ventilation, wear suitable respiratory equipment.
Avoid contact with skin and eyes.
For personal protection see section 8.
Keep away from fire, sparks and heated surfaces.
Smoking, eating and drinking should be prohibited in the application area.
Wash hands and face before breaks and immediately after handling the product.
Do not get in eyes or mouth or on skin.

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Do not get on skin or clothing.
Do not ingest.
Do not use sparking tools.
These safety instructions also apply to empty packaging which may still contain product residues.
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : BEWARE: Aerosol is pressurized. Keep away from direct sun exposure and temperatures over 50 °C. Do not open by force or throw into fire even after use. Do not spray on flames or red-hot objects.
Store in accordance with the particular national regulations.

German storage class : 2B Aerosol cans and lighters

7.3 Specific end use(s)

: Consult the technical guidelines for the use of this substance/mixture.

8. Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value type	Control parameters	Update	Basis
isobutane	75-28-5	AGW	1.000 ppm 2.400 mg/m ³	2006-01-01	DE TRGS 900
Further information:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).				
n-butyl acetate	123-86-4	AGW	62 ppm 300 mg/m ³	2012-09-13	DE TRGS 900
Further information:	AGS: Commission for dangerous substances When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child				
propane	74-98-6	AGW	1.000 ppm 1.800 mg/m ³	2006-01-01	DE TRGS 900
Further information:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).				
butane	106-97-8	AGW	1.000 ppm 2.400 mg/m ³	2006-01-01	DE TRGS 900
Further information:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).				
butan-1-ol	71-36-3	AGW	100 ppm 310 mg/m ³	2006-01-01	DE TRGS 900

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Further information:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission). When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child				
naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	AGW	100 mg/m ³	2009-02-16	DE TRGS 900
Further information:	Group-AGW: Group exposure limit for hydrocarbon solvent mixtures Commission for dangerous substances See also No. 2.9 of the TRGS 900				
solvent naphtha (petroleum), light arom.	64742-95-6	AGW	100 mg/m ³	2009-02-16	DE TRGS 900
Further information:	Group-AGW: Group exposure limit for hydrocarbon solvent mixtures Commission for dangerous substances See also No. 2.9 of the TRGS 900				
Graphite	7782-42-5	AGW	10 mg/m ³	2014-04-02	DE TRGS 900
Further information:	General dust value. For this substance no specific occupational exposure limit value is established, since the AGS does not yet have information regarding unspecific action on the respiratory organs in excess of the normal values. Commission for dangerous substances Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).				
Graphite	7782-42-5	AGW	1,25 mg/m ³	2014-04-02	DE TRGS 900
Further information:	General dust value. For this substance no specific occupational exposure limit value is established, since the AGS does not yet have information regarding unspecific action on the respiratory organs in excess of the normal values. Commission for dangerous substances Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).				

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Update
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DNEL

titanium tetrabutanolate : End Use: Industrial use
 Exposure routes: Inhalation
 Potential health effects: Long-term systemic effects
 Value: 127 mg/m³

butan-1-ol : End Use: Workers
 Exposure routes: Inhalation
 Potential health effects: Long-term local effects
 Value: 310 mg/m³

End Use: Consumers
 Exposure routes: Inhalation
 Potential health effects: Long-term local effects
 Value: 55 mg/m³

End Use: Consumers
 Exposure routes: Ingestion
 Potential health effects: Long-term systemic effects
 Value: 3,125 mg/kg

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naphtha (petroleum),
hydrodesulphurized heavy : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 330 mg/m³

End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 24 mg/kg bw/day

but-1-ene : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 768,7 mg/m³

butene, mixed-1-and-2-
isomers : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 768,7 mg/m³

zinc oxide : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 5 mg/m³

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 0,5 mg/m³

End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 83 mg/kg bw/day

n-butyl acetate : 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: Acute systemic effects
Value: 960 mg/m³

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 480 mg/m³

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Acute systemic effects
Value: 960 mg/m³

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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: Acute systemic effects
Value: 859,7 mg/m³

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 102,34 mg/m³

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Acute local effects
Value: 102,34 mg/m³

PNEC

titanium tetrabutanolate

: Fresh water
Value: 0,08 mg/l

Marine water
Value: 0,008 mg/l

Fresh water sediment
Value: 0,0687 mg/kg

Marine sediment
Value: 0,0069 mg/kg

Soil
Value: 0,0168 mg/kg

butan-1-ol

: Fresh water
Value: 0,082 mg/l

Marine water
Value: 0,0082 mg/l

Intermittent use/release
Value: 2,25 mg/l

Microbiological Activity in Sewage Treatment Systems
Value: 2476 mg/l

Fresh water sediment
Value: 0,178 mg/kg

Marine sediment
Value: 0,0178 mg/kg

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	Soil Value: 0,015 mg/kg
zinc oxide	: Fresh water Value: 0,0206 mg/l
	Marine water Value: 0,0061 mg/l
	Microbiological Activity in Sewage Treatment Systems Value: 0,100 mg/l
	Fresh water sediment Value: 117,8 mg/kg
	Marine sediment Value: 56,5 mg/kg
	Soil Value: 35,6 mg/kg
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
	Microbiological Activity in Sewage Treatment Systems 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

8.2 Exposure controls

Engineering measures

Use only in an area equipped with explosion proof exhaust ventilation.
Handle only in a place equipped with local exhaust (or other appropriate exhaust).

Personal protective equipment

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
Short term only
Filter type A-P

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- Hand protection : Wear protective gloves.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case.
In case of contact through splashing:
- : Nitrile rubber
Protective index Class 1
- Eye protection : Safety glasses with side-shields conforming to EN166
- Hygiene measures : Wash face, hands and any exposed skin thoroughly after handling.
- Protective measures : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Environmental exposure controls

- General advice : Do not allow contact with soil, surface or ground water.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

9. Physical and chemical properties

Values refer to the propellant:

9.1 Information on basic physical and chemical properties

- Appearance : aerosol
- Colour : colourless
- Odour : characteristic
- Odour Threshold : No data available
- pH : No data available
- Melting point/range : No data available
- Boiling point/boiling range : < -10 °C, 1.013 hPa
- Flash point : -80 °C, Test Method: closed cup
- Evaporation rate : No data available
- Flammability (solid, gas) : Extremely flammable aerosol.
- Lower explosion limit : 1,5 %(V)
- Upper explosion limit : 11,2 %(V)

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Vapour pressure	: 2.700 hPa, 20 °C
Relative vapour density	: No data available
Density	: 0,60 g/cm ³ , 20 °C
Water solubility	: insoluble
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Ignition temperature	: > 350 °C
Thermal decomposition	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Explosive properties	: Not explosive
Oxidizing properties	: No data available

9.2 Other information

Sublimation point	: No data available
Bulk density	: No data available

10. Stability and reactivity

10.1 Reactivity

No hazards to be specially mentioned.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : No decomposition if stored and applied as directed.

11. Toxicological information

11.1 Information on toxicological effects

Product

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- Acute oral toxicity : Effects due to ingestion may include:
: Central nervous system depression
: Acute toxicity estimate: > 2.000 mg/kg, Calculation method
- Acute inhalation toxicity : Respiration of solvent vapour may cause dizziness.
: Inhalation may provoke the following symptoms:., Respiratory disorder, Dizziness, Drowsiness, Vomiting, Fatigue, Vertigo, Central nervous system depression
- Skin corrosion/irritation : This information is not available.
- Serious eye damage/eye irritation : Risk of serious damage to eyes.
- Respiratory or skin sensitisation : This information is not available.
- Germ cell mutagenicity
- Genotoxicity in vitro : No data available
- Genotoxicity in vivo : No data available
- Carcinogenicity : No data available
- Reproductive toxicity : No data available
- Teratogenicity : No data available
- Repeated dose toxicity : This information is not available.
- Aspiration toxicity : This information is not available.
- Further information : Information given is based on data on the components and the toxicology of similar products.

Components:

titanium tetrabutanolate :

- Acute oral toxicity : LD50: > 2.000 mg/kg, Rat, The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity : LC50: > 10 mg/l, 4 h, Mouse, dust/mist, Test substance: Butan-1-ol, The substance or mixture has no acute inhalation toxicity
- Skin corrosion/irritation : Result: Irritating to skin., Classification: Irritating to skin.
- Serious eye damage/eye irritation : Rabbit, Result: Risk of serious damage to eyes., Classification: Risk of serious damage to eyes.
- STOT - single exposure : Exposure routes: Inhalation
Target Organs: Respiratory organs
Assessment: May cause respiratory irritation., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.
- : Exposure routes: Ingestion, Inhalation
Target Organs: Nervous system
Assessment: May cause drowsiness or dizziness., The substance or mixture is classified as specific target organ

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toxicant, single exposure, category 3 with narcotic effects.

butan-1-ol :

- Acute oral toxicity : LD50: 2.292 mg/kg, Rat, OECD Test Guideline 401, The component/mixture is moderately toxic after single ingestion.
: Acute toxicity estimate: 500 mg/kg, Converted acute toxicity point estimate
- Acute inhalation toxicity : LC50: > 17,76 mg/l, 4 h, Rat, vapour, OECD Test Guideline 403, GLP: yes, The substance or mixture has no acute inhalation toxicity,
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.
- Acute dermal toxicity : LD50: 3.430 mg/kg, Rabbit, OECD Test Guideline 402
- Skin corrosion/irritation : Rabbit, Result: Irritating to skin., Classification: Irritating to skin.
- Serious eye damage/eye irritation : Rabbit, Result: Risk of serious damage to eyes., Classification: Risk of serious damage to eyes., OECD Test Guideline 405, GLP: yes
- Respiratory or skin sensitisation : Result: Did not cause sensitisation on laboratory animals., Classification: Did not cause sensitisation on laboratory animals.
- Germ cell mutagenicity
Assessment : Animal testing did not show any mutagenic effects.
- STOT - single exposure : Exposure routes: Inhalation
Target Organs: Respiratory system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.
- : Exposure routes: Inhalation
Target Organs: Central nervous system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.
- STOT - repeated exposure : Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

naphtha (petroleum), hydrodesulphurized heavy :

- Acute oral toxicity : LD50: > 15.000 mg/kg, Rat, OECD Test Guideline 401
- Acute inhalation toxicity : LC50: > 13,1 mg/l, 4 h, Rat, vapour, OECD Test Guideline 403, The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50: 3.400 mg/kg, Rat, OECD Test Guideline 402, The

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- substance or mixture has no acute dermal toxicity
- Skin corrosion/irritation : Result: Repeated exposure may cause skin dryness or cracking.
- Serious eye damage/eye irritation : Rabbit, Result: No eye irritation, Classification: No eye irritation, OECD Test Guideline 405, GLP: yes
- Respiratory or skin sensitisation : Maximisation Test (GPMT), Guinea pig, Result: Does not cause skin sensitisation., Classification: Does not cause skin sensitisation., OECD Test Guideline 406
- Germ cell mutagenicity Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- STOT - single exposure : Exposure routes: Inhalation
Target Organs: Central nervous system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.
- STOT - repeated exposure : Exposure routes: Inhalation
Target Organs: Central nervous system
Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.
- Aspiration toxicity : May be fatal if swallowed and enters airways.
- solvent naphtha (petroleum), light arom. :**
- Acute oral toxicity : LD50: 4.200 mg/kg, Rat, OECD Test Guideline 401
- Acute dermal toxicity : LD50: > 2.000 mg/kg, Rabbit, OECD Test Guideline 402, The component/mixture is low toxic after single contact with skin.
- Skin corrosion/irritation : Rabbit, Result: Mild skin irritation, OECD Test Guideline 404
: Result: Repeated exposure may cause skin dryness or cracking.
- Serious eye damage/eye irritation : Rabbit, Result: No eye irritation, Classification: No eye irritation
- Respiratory or skin sensitisation : Maximisation Test (GPMT), Guinea pig, Result: Does not cause skin sensitisation., Classification: Does not cause skin sensitisation., OECD Test Guideline 406
- Germ cell mutagenicity Assessment : Animal testing did not show any mutagenic effects.
- STOT - single exposure : Exposure routes: Inhalation
Target Organs: Respiratory system
Assessment: May cause respiratory irritation.

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- : Exposure routes: Inhalation
Target Organs: Central nervous system
Assessment: May cause drowsiness or dizziness.
- STOT - repeated exposure : Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
- Aspiration toxicity : May be fatal if swallowed and enters airways.
- Acute effects (Assessment) :
- but-1-ene :**
- Acute oral toxicity : Not applicable
- Acute inhalation toxicity : LC50: > 10000 ppm, 4 h, Rat, gas, OECD Test Guideline 403, The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : Not applicable
- Skin corrosion/irritation : Rapid evaporation of the liquid may cause frostbite.
- Germ cell mutagenicity
- Genotoxicity in vitro : Ames test, with and without metabolic activation, Result: negative
- butene, mixed-1-and-2-isomers :**
- Acute oral toxicity : Not applicable
- Acute inhalation toxicity : LC50: 23 mg/l, 10000 ppm, 4 h, Rat, gas, OECD Test Guideline 403, The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : Not applicable
- Skin corrosion/irritation : Rapid evaporation of the liquid may cause frostbite.
- Germ cell mutagenicity
- Genotoxicity in vitro : Chromosome aberration test in vitro, Rodent cell line, with and without metabolic activation, Result: negative, OECD Test Guideline 473
- zinc oxide :**
- Acute oral toxicity : LD50: > 5.000 mg/kg, Rat, OECD Test Guideline 401
- Acute inhalation toxicity : LC50: > 5,7 mg/l, 4 h, Rat, dust/mist, OECD Test Guideline 403, The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50: > 2.000 mg/kg, Rat, OECD Test Guideline 402, GLP: yes, The substance or mixture has no acute dermal toxicity
- Skin corrosion/irritation : Rabbit, Result: No skin irritation, Classification: No skin irritation, OECD Test Guideline 404
- Serious eye damage/eye irritation : Rabbit, Result: No eye irritation, Classification: No eye irritation, OECD Test Guideline 405, GLP: yes

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Respiratory or skin sensitisation	: Maximisation Test (GPMT), Guinea pig, Result: Does not cause skin sensitisation., Classification: Does not cause skin sensitisation., OECD Test Guideline 406
Germ cell mutagenicity	
Assessment	: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
STOT - single exposure	: Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.
STOT - repeated exposure	: Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
isobutane :	
Acute inhalation toxicity	: LC50: 658 mg/l, 4 h, Rat, gas
n-butyl acetate :	
Acute oral toxicity	: LD50: 10.768 mg/kg, Rat
Acute inhalation toxicity	: LC50: > 21 mg/l, 4 h, Rat, vapour, OECD Test Guideline 403, GLP: yes
Acute dermal toxicity	: LD50: > 17.600 mg/kg, Rabbit
Skin corrosion/irritation	: Rabbit, Result: Repeated exposure may cause skin dryness or cracking., Classification: No skin irritation, OECD Test Guideline 404
Serious eye damage/eye irritation	: Rabbit, Result: No eye irritation, Classification: No eye irritation, OECD Test Guideline 405, GLP: yes
Respiratory or skin sensitisation	: Maximisation Test (GPMT), Guinea pig, Result: Does not cause skin sensitisation., Classification: Does not cause skin sensitisation., OECD Test Guideline 406
Germ cell mutagenicity	
Genotoxicity in vitro	: Ames test, Salmonella typhimurium, Result: negative, OECD Test Guideline 471 : Chromosome aberration test in vitro, Chinese hamster cells, Result: negative, OECD Test Guideline 473
Assessment	: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.
STOT - single exposure	: Exposure routes: Inhalation Target Organs: Central nervous system Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

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- STOT - repeated exposure : Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
- Aspiration toxicity : No aspiration toxicity classification
- butane :**
Acute inhalation toxicity : LC50: 658 mg/l, 4 h, Rat, gas
- Graphite :**
Acute inhalation toxicity : Dust may cause sore throat and pains in the lungs and chest., Respiratory disorder, Inhalation may provoke the following symptoms:
- Skin corrosion/irritation : Rabbit, Result: No skin irritation, Classification: No skin irritation, OECD Test Guideline 404, GLP: yes
- Serious eye damage/eye irritation : Rabbit, Result: No eye irritation, Classification: No eye irritation, OECD Test Guideline 405, GLP: yes
: Contact with eyes may cause irritation.
- Respiratory or skin sensitisation : Mouse, Result: Does not cause skin sensitisation., Classification: Does not cause skin sensitisation., OECD Test Guideline 429, GLP: yes

12. Ecological information

12.1 Toxicity

Product:

- Toxicity to fish : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Toxicity to daphnia and other aquatic invertebrates : No data available
- Toxicity to algae : No data available
- Toxicity to bacteria : No data available

Components:

titanium tetrabutanoate :

- Toxicity to fish : LC50: 1.740 mg/l, 96 h, Pimephales promelas (fathead minnow), Test substance: Butan-1-ol
- Toxicity to daphnia and other aquatic invertebrates : EC50: 1.983 mg/l, 48 h, Daphnia magna (Water flea), Test substance: Butan-1-ol
- Toxicity to algae : EC50: 225 mg/l, 96 h, Pseudokirchneriella subcapitata

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(green algae), OECD Test Guideline 201, Test substance:
Butan-1-ol

butan-1-ol :

- Toxicity to fish : LC50: 1.376 mg/l, 96 h, Pimephales promelas (fathead minnow), static test, OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50: 1.328 mg/l, 48 h, Daphnia magna (Water flea), static test, OECD Test Guideline 202
- Toxicity to algae : EC50: 225 mg/l, 96 h, Pseudokirchneriella subcapitata (green algae), static test, OECD Test Guideline 201
- Toxicity to bacteria : EC10: 2.476 mg/l, 17 h, Pseudomonas putida, static test, DIN 38 412 Part 8
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 4,1 mg/l, 21 d, Daphnia magna (Water flea), Reproduction Test, OECD Test Guideline 211

naphtha (petroleum), hydrodesulphurized heavy :

- Toxicity to fish : LC50: 10 mg/l, 96 h, Oncorhynchus mykiss (rainbow trout), OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50: 10 mg/l, 48 h, Daphnia magna (Water flea), Immobilization, OECD Test Guideline 202
- Toxicity to algae : EC50: 4,6 mg/l, 72 h, Pseudokirchneriella subcapitata (green algae), Growth inhibition
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,097 mg/l, Daphnia magna (Water flea)

solvent naphtha (petroleum), light arom. :

- Toxicity to fish : LC50: 9,22 mg/l, 96 h, Oncorhynchus mykiss (rainbow trout)
- Toxicity to daphnia and other aquatic invertebrates : EC50: 6,14 mg/l, 48 h, Daphnia magna (Water flea)

Ecotoxicology Assessment

- Acute aquatic toxicity : Toxic to aquatic life.
- Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

zinc oxide :

- Toxicity to fish : LC50: 1,55 mg/l, 96 h, Danio rerio (zebra fish), static test
- Toxicity to daphnia and other aquatic invertebrates : EC50: 1 mg/l, 48 h, Daphnia magna (Water flea), static test, OECD Test Guideline 202
- Toxicity to algae : EC50: 0,136 mg/l, 72 h, Pseudokirchneriella subcapitata (green algae), static test, OECD Test Guideline 201, GLP: yes

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M-Factor	:	1
n-butyl acetate :		
Toxicity to fish	:	LC50: 18 mg/l, 96 h, Pimephales promelas (fathead minnow), flow-through test, OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50: 44 mg/l, 48 h, Daphnia (water flea), static test
Toxicity to algae	:	EC50: 675 mg/l, 72 h, Desmodesmus subspicatus (green algae), static test
Toxicity to bacteria	:	EC50: 356 mg/l, 40 h, Protozoa, Growth inhibition
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 23 mg/l, 21 d, Daphnia magna (Water flea), Reproduction Test, GLP: yes
Graphite :		
Toxicity to fish	:	LC50: > 100 mg/l, 96 h, Danio rerio (zebra fish), OECD Test Guideline 203, GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50: > 100 mg/l, 48 h, Daphnia magna (Water flea), OECD Test Guideline 202, GLP: yes
Toxicity to algae	:	EC50: > 100 mg/l, 72 h, Pseudokirchneriella subcapitata (green algae), OECD Test Guideline 201, GLP: yes

12.2 Persistence and degradability

Product:

Biodegradability	:	No data available
Physico-chemical removability	:	No data available

Components:

titanium tetrabutanolate :

Biodegradability	:	Result: Readily biodegradable, Test substance: Butan-1-ol, The organic components of the product are biodegradable.
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butan-1-ol :

Biodegradability	:	aerobic, > 92 %, Result: rapidly biodegradable, Exposure time: 28 d, activated sludge
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naphtha (petroleum), hydrodesulphurized heavy :

Biodegradability	:	Result: Readily biodegradable
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but-1-ene :

Biodegradability	:	Result: Readily biodegradable
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butene, mixed-1-and-2-isomers :

Biodegradability	:	Result: Readily biodegradable
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zinc oxide :

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Biodegradability :
The methods for determining biodegradability are not applicable to inorganic substances.

n-butyl acetate :

Biodegradability : Primary biodegradation, 83 %, Result: rapidly biodegradable, Exposure time: 28 d, OECD Test Guideline 301D

12.3 Bioaccumulative potential

Product:

Bioaccumulation :
This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT)., This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

Components:

butan-1-ol :

Bioaccumulation :
Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil

Product:

Mobility : No data available
Distribution among environmental compartments : No data available

12.5 Results of PBT and vPvB assessment

Product:

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.

Components:

butan-1-ol :

Assessment : Non-classified PBT substance, Non-classified vPvB substance

naphtha (petroleum), hydrodesulphurized heavy :

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

zinc oxide :

Assessment : Not applicable

n-butyl acetate :

Assessment : Non-classified PBT substance, Non-classified vPvB substance

12.6 Other adverse effects

Product:

Additional ecological information : Harmful to aquatic life with long lasting effects.

Components:

naphtha (petroleum), hydrodesulphurized heavy :

Additional ecological : Toxic to aquatic life with long lasting effects.

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14.6 Special precautions for user

No special precautions required.

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

Remarks : Not applicable for product as supplied.

15. Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Major Accident Hazard Legislation : 96/82/EC Update:
Extremely flammable
8
Quantity 1: 10 t
Quantity 2: 50 t

: 96/82/EC Update:
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
13
Quantity 1: 2.500 t
Quantity 2: 25.000 t

Water contaminating class (Germany) : WGK 2: water endangering

TA Luft List (Germany) : Total dust: Portion other substances: 6,77 %
Inorganic substances in powdered form: Not applicable
Inorganic substances in vapour or gaseous form: Not applicable
Organic Substances: Portion other substances: 93,23 %
Carcinogenic substances: Not applicable
Mutagenic: Not applicable
Toxic to reproduction: Not applicable

15.2 Chemical Safety Assessment

This information is not available.

16. Other information

Full text of R-phrases referred to under sections 2 and 3

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - DE



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R10	Flammable.
R12	Extremely flammable.
R22	Harmful if swallowed.
R36	Irritating to eyes.
R37	Irritating to respiratory system.
R37/38	Irritating to respiratory system and skin.
R41	Risk of serious damage 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.
R52/53	Harmful 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 referred to under sections 2 and 3.

H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H226	Flammable liquid and vapour.
H229	Pressurised container: May burst if heated.
H280	Contains gas under pressure; may explode if heated.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Further information

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to describe the product in relation to the required safety measures; they are neither an assurance of characteristics nor a guarantee of the product's suitability for particular applications and do not justify any contractual legal relationships.