UNIMOLY C 220 Spray

Version	Revision Date:	Date of last issue: -	Print Date:
1.0	01.08.2024	Date of first issue: 01.08.2024	01.08.2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : UNIMOLY C 220 Spray

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

Company : SurTec Deutschland GmbH
SurTec-Str. 2
64673 Zwingenberg
Germany
Tel.: +49-6251-171-700
Fax: +49-6251-171-800
mail@surtec.com

E-mail address of person responsible for the SDS : STI.SDS@SurTec.com

National contact : SurTec Deutschland GmbH
SurTec-Str. 2
64673 Zwingenberg
Germany
Tel.: +49-6251-171-700
Fax: +49-6251-171-800
mail@surtec.com

1.4 Emergency telephone number

Emergency telephone number : +49 6251 171 899

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.

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.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

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.
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.
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/ doctor.

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:

n-butyl acetate

titanium tetrabutanolate

butan-1-ol

Hydrocarbons, C9, aromatics

2.3 Other hazards

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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Propellant
inorganic binding agent
Solvent mixture
solid lubricant

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	specific concentration limit M-Factor Notes Acute toxicity estimate	Concentration (% w/w)
n-butyl acetate	123-86-4 204-658-1 607-025-00-1 01-2119485493-29-XXXX	Flam. Liq.3; H226 STOT SE3; H336; EUH066		>= 10 - < 20
titanium tetrabutanolate	5593-70-4 227-006-8	Flam. Liq.3; H226 Skin Irrit.2; H315		>= 3 - < 10

	01-2119967423-33-XXXX	Eye Dam.1; H318 STOT SE3; H336 STOT SE3; H335		
butan-1-ol	71-36-3 200-751-6 603-004-00-6 01-2119484630-38-XXXX	Flam. Liq.3; H226 Acute Tox.4; H302 Skin Irrit.2; H315 Eye Dam.1; H318 STOT SE3; H336 STOT SE3; H335	ATE (Oral): 500 mg/kg;	>= 1 - < 3
Hydrocarbons, C11-C13, isoalkanes, <2% aromatics	920-901-0 01-2119456810-40-XXXX	Asp. Tox.1; H304; EUH066		>= 1 - < 10
Hydrocarbons, C9, aromatics	918-668-5 01-2119455851-35-XXXX	Flam. Liq.3; H226 STOT SE3; H335 STOT SE3; H336 Asp. Tox.1; H304 Aquatic Chronic2; H411; EUH066	Note P	>= 1 - < 2,5
zinc oxide	1314-13-2 215-222-5 030-013-00-7 01-2119463881-32-XXXX	Aquatic Acute1; H400 Aquatic Chronic1; H410	M-Factor: 1/1	>= 0,1 - < 0,25
Substances with a workplace exposure limit :				
isobutane	75-28-5 200-857-2 601-004-00-0 01-2119485395-27-XXXX	Flam. Gas1A; H220 Press. GasCompr. Gas; H280	Note U (table 3.1), Note C	>= 50 - < 70
propane	74-98-6 200-827-9 601-003-00-5 01-2119486944-21-XXXX	Flam. Gas1A; H220 Press. GasCompr. Gas; H280	Note U (table 3.1)	>= 1 - < 10
butane	106-97-8 203-448-7	Flam. Gas1A; H220		>= 1 - < 10

	601-004-00-0 01-2119474691-32-XXXX	Press. GasCompr. Gas; H280	Note U (table 3.1), Note C	
zinc sulphide	1314-98-3 215-251-3 01-2119475779-15-XXXX	Not classified		>= 1 - < 10

For explanation of abbreviations see section 16.

SECTION 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.
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.

SECTION 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 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.

Hazardous combustion products : Carbon oxides
Sulphur oxides
Metal 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. 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.

SECTION 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.
Only qualified personnel equipped with suitable protective equipment may intervene.

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 material 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.

SECTION 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.
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.

Hygiene measures : Wash face, hands and any exposed skin thoroughly after handling.

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.

Storage class (TRGS 510) : 2B, Aerosol cans and lighters

7.3 Specific end use(s)

Specific use(s) : Specific instructions for handling, not required.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
isobutane	75-28-5	AGW	1.000 ppm 2.400 mg/m3	DE TRGS 900 (2006-01-01)
	Peak-limit: excursion factor (category): 4;(II)			
		MAK	1.000 ppm 2.400 mg/m3	DE DFG MAK (2008-07-01)
	Further information: Either there are no data for an assessment of damage to the embryo or foetus, including developmental neurotoxicity, or the currently available data are not sufficient for classification in one of the groups A - C			
n-butyl acetate	123-86-4	STEL	150 ppm 723 mg/m3	2019/1831/EU (2019-10-31)
	Further information: Indicative			
		TWA	50 ppm 241 mg/m3	2019/1831/EU (2019-10-31)
	Further information: Indicative			
		MAK	100 ppm 480 mg/m3	DE DFG MAK (2005-07-01)
	Further information: Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		AGW	62 ppm	DE TRGS

			300 mg/m3	900 (2022-06-23)
	Peak-limit: excursion factor (category): 2;(I)			
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
propane	74-98-6	MAK	1.000 ppm 1.800 mg/m3	DE DFG MAK (2006-07-01)
	Further information: Either there are no data for an assessment of damage to the embryo or foetus, including developmental neurotoxicity, or the currently available data are not sufficient for classification in one of the groups A - C			
		AGW	1.000 ppm 1.800 mg/m3	DE TRGS 900 (2006-01-01)
	Peak-limit: excursion factor (category): 4;(II)			
butan-1-ol	71-36-3	MAK	100 ppm 310 mg/m3	DE DFG MAK (2005-07-01)
	Further information: Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		AGW	100 ppm 310 mg/m3	DE TRGS 900 (2006-01-01)
	Peak-limit: excursion factor (category): 1;(I)			
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
butane	106-97-8	AGW	1.000 ppm 2.400 mg/m3	DE TRGS 900 (2006-01-01)
	Peak-limit: excursion factor (category): 4;(II)			
		MAK	1.000 ppm 2.400 mg/m3	DE DFG MAK (2008-07-01)
	Further information: Either there are no data for an assessment of damage to the embryo or foetus, including developmental neurotoxicity, or the currently available data are not sufficient for classification in one of the groups A - C			
Hydrocarbons, C11-C13, isoalkanes, <2% aromatics	Not Assigned	AGW	600 mg/m3	DE TRGS 900 (2009-02-16)
	Peak-limit: excursion factor (category): 2;(II)			
	Further information: Group exposure limit for hydrocarbon solvent mixtures, Commission for dangerous substances, See also No. 2.9 of the TRGS 900			
		MAK (aerosol)	5 mg/m3	DE DFG MAK (2023-07-01)
	Further information: Substances that cause concern that they could be carcinogenic for man but cannot be assessed conclusively because of lack of data, Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		MAK (Vapour)	50 ppm 350 mg/m3	DE DFG MAK (2023-07-01)
	Further information: Substances that cause concern that they could be			

	carcinogenic for man but cannot be assessed conclusively because of lack of data, Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		AGW	300 mg/m3	DE TRGS 900 (2020-10-02)
	Peak-limit: excursion factor (category): 2;(II)			
	Further information: When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
		AGW	300 mg/m3	DE TRGS 900 (2017-11-30)
	Peak-limit: excursion factor (category): 2;(II)			
	Further information: Group exposure limit for hydrocarbon solvent mixtures			
zinc sulphide	1314-98-3	MAK (measured as the alveolate fraction)	0,1 mg/m3	DE DFG MAK (2023-07-01)
	Further information: Zinc chloride: peak limit I(1), Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		MAK (inhalable fraction)	2 mg/m3	DE DFG MAK (2023-07-01)
	Further information: Zinc chloride: peak limit I(1), Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
zinc oxide	1314-13-2	MAK (measured as the alveolate fraction)	0,1 mg/m3	DE DFG MAK (2023-07-01)
	Further information: Zinc chloride: peak limit I(1), Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			
		MAK (inhalable fraction)	2 mg/m3	DE DFG MAK (2023-07-01)
	Further information: Zinc chloride: peak limit I(1), Damage to the embryo or foetus is unlikely when the MAK value or the BAT value is observed			

Further occupational exposure limits

Description	Value type	Control parameters	Basis
Calculated according to TRGS 900 RCP-method	AGW	150 mg/m3	DE TRGS 900

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
butan-1-ol	71-36-3	1-butanol: 2 mg/g creatinine (Urine)	Before next shift	DE DFG BAT (2023-07-01)
		1-butanol: 10 mg/g creatinine (Urine)	Immediately after exposition or after working hours	DE DFG BAT (2023-07-01)
		1-butanol: 2 mg/g	Before next shift	TRGS 903

		creatinine (Urine)		(2013-09-19)
		1-butanol: 10 mg/g creatinine (Urine)	Immediately after exposure or after working hours	TRGS 903 (2013-09-19)

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

Substance name	End Use	Exposure routes	Potential health effects	Value
n-butyl acetate	Workers	Inhalation	Long-term systemic effects	300 mg/m3
	Workers	Inhalation	Acute systemic effects	600 mg/m3
	Workers	Dermal	Long-term local effects	11 mg/cm2
titanium tetrabutanolate	Workers	Inhalation	Long-term systemic effects	127 mg/m3
butan-1-ol	Workers	Inhalation	Long-term local effects	310 mg/m3
Hydrocarbons, C9, aromatics	Workers	Skin contact	Long-term systemic effects	25 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	150 mg/m3
zinc sulphide	Workers	Inhalation	Long-term systemic effects	5 mg/m3
	Workers	Dermal	Long-term systemic effects	83 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
n-butyl acetate	Fresh water	0,18 mg/l
	Marine water	0,018 mg/l
	Microbiological Activity in Sewage Treatment Systems	35,6 mg/l
	Fresh water sediment	0,981 mg/kg
	Marine sediment	0,0981 mg/kg
	Soil	0,09 mg/kg
titanium tetrabutanolate	Fresh water	0,08 mg/l
	Intermittent use/release	2,25 mg/l
	Marine water	0,008 mg/l
	Sewage treatment plant	65 mg/l
	Fresh water sediment	0,069 mg/kg
	Marine sediment	0,007 mg/kg
	Soil	0,017 mg/kg
butan-1-ol	Fresh water	0,082 mg/l
	Marine water	0,008 mg/l
	Intermittent use/release	2,25 mg/l
	Microbiological Activity in Sewage Treatment Systems	2476 mg/l
	Fresh water sediment	0,324 mg/kg dry

		weight (d.w.)
	Marine sediment	0,032 mg/kg dry weight (d.w.)
	Soil	0,017 mg/kg dry weight (d.w.)
zinc sulphide	Fresh water	0,0206 mg/l
	Marine water	0,0061 mg/l
	Microbiological Activity in Sewage Treatment Systems	0,1 mg/l
	Fresh water sediment	117,8 mg/kg
	Marine sediment	56,5 mg/kg
	Soil	35,6 mg/kg
zinc oxide	Fresh water	0,0179 mg/l
	Marine water	0,009 mg/l
	Sewage treatment plant	0,1245 mg/l
	Fresh water sediment	182,8 mg/kg
	Marine sediment	201,9 mg/kg
	Soil	103,4 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

Eye/face protection : Tightly fitting safety goggles

Hand protection
- Material : Nitrile rubber
- Break through time : > 10 min
- Protective index : Class 1

Remarks : Wear protective gloves. 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.
The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

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	:	Filter type A-P
Protective measures	:	The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	aerosol
Colour	:	grey
Odour	:	characteristic
Odour Threshold	:	No data available

Values refer to the propellant:

Melting point/range	:	No data available
Boiling point/boiling range	:	< -10 °C (1.013 hPa)
Flammability (solid, gas)	:	Extremely flammable aerosol.
Upper explosion limit / Upper flammability limit	:	11,2 %(V)
Lower explosion limit / Lower flammability limit	:	1,5 %(V)
Flash point	:	-80 °C Method: closed cup
Auto-ignition temperature	:	> 350 °C
Decomposition temperature	:	No data available
pH	:	Not applicable substance/mixture reacts with water
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Solubility(ies)		

Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	2.700 hPa (20 °C)
Relative density	:	0,60 (20 °C) Reference substance: Water The value is calculated
Density	:	0,60 g/cm3 (20 °C)
Bulk density	:	No data available
Relative vapour density	:	No data available

9.2 Other information

Explosives	:	Not explosive
Oxidizing properties	:	No data available
Self-ignition	:	No data available
Evaporation rate	:	No data available
Sublimation point	:	No data available

SECTION 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. Strong sunlight for prolonged periods. Risk of receptacle bursting.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents
Acids

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product:

Acute oral toxicity : Remarks: Effects due to ingestion may include:

Symptoms: Central nervous system depression

Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Remarks: Respiration of solvent vapour may cause dizziness.
Toxic by inhalation.
Irritating to respiratory system.

Symptoms: Inhalation may provoke the following symptoms:, Respiratory disorder, Local irritation, Respiratory disorders, Dizziness, Drowsiness, Vomiting, Fatigue, Vertigo, Central nervous system depression

Acute dermal toxicity : Symptoms: Redness, Local irritation

Components:

n-butyl acetate:

Acute oral toxicity : LD50 (Rat): 10.768 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 21 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 17.600 mg/kg

titanium tetrabutanolate:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Mouse): > 10 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Test substance: Butan-1-ol
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : (Rabbit): 5.300 mg/kg

butan-1-ol:

Acute oral toxicity : Acute toxicity estimate: 500 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat): > 17,76 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 3.430 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Hydrocarbons, C9, aromatics:

Acute oral toxicity : LD50 (Rat): 4.200 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is minimally toxic after single contact with skin.

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

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

isobutane:

Acute inhalation toxicity : LC50 (Rat): 658 mg/l
Exposure time: 4 h
Test atmosphere: gas

butane:

Acute inhalation toxicity : LC50 (Rat): 658 mg/l
Exposure time: 4 h
Test atmosphere: gas

zinc sulphide:

Acute oral toxicity : LD50 (Rat): > 15.000 mg/kg

Skin corrosion/irritation

Product:

Remarks : Irritating to skin.

Components:

n-butyl acetate:

Species : Rabbit
Assessment : No skin irritation
Method : OECD Test Guideline 404
Result : Repeated exposure may cause skin dryness or cracking.

titanium tetrabutanolate:

Species : Rabbit
Assessment : Irritating to skin.
Result : Irritating to skin.

butan-1-ol:

Species : Rabbit
Assessment : Irritating to skin.
Result : Irritating to skin.

Hydrocarbons, C11-C13, isoalkanes, <2% aromatics:

Result : Repeated exposure may cause skin dryness or cracking.

Hydrocarbons, C9, aromatics:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Mild skin irritation

Result : Repeated exposure may cause skin dryness or cracking.

zinc oxide:

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

Serious eye damage/eye irritation

Product:

Remarks : Risk of serious damage to eyes.

Components:

n-butyl acetate:

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

titanium tetrabutanolate:

Species : Rabbit
Assessment : Risk of serious damage to eyes.
Result : Risk of serious damage to eyes.

butan-1-ol:

Species : Rabbit
Assessment : Risk of serious damage to eyes.
Method : OECD Test Guideline 405
Result : Risk of serious damage to eyes.
GLP : yes

Hydrocarbons, C9, aromatics:

Species : Rabbit
Assessment : No eye irritation
Result : No eye irritation

zinc oxide:

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

Respiratory or skin sensitisation

Product:

Remarks	:	This information is not available.

Components:

n-butyl acetate:

Test Type	:	Maximisation Test
Exposure routes	:	Dermal
Species	:	Guinea pig
Assessment	:	Does not cause skin sensitisation.
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

titanium tetrabutanolate:

Species	:	Mouse
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	Regulation (EC) No. 440/2008, Annex, B.42 (LLNA)
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

butan-1-ol:

Species	:	Mouse
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 429
Result	:	Did not cause sensitisation on laboratory animals.

Hydrocarbons, C9, aromatics:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Assessment	:	Does not cause skin sensitisation.
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

zinc oxide:

Test Type	:	Maximisation Test

Species	:	Guinea pig
Assessment	:	Does not cause skin sensitisation.
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.
GLP	:	yes

Germ cell mutagenicity

Product:

Genotoxicity in vitro	:	Remarks: No data available
Genotoxicity in vivo	:	Remarks: No data available

Components:

n-butyl acetate:

Genotoxicity in vitro	:	Test Type: Ames test Test system: Salmonella typhimurium Method: OECD Test Guideline 471 Result: negative Test Type: Chromosome aberration test in vitro Test system: Chinese hamster cells Method: OECD Test Guideline 473 Result: negative
Genotoxicity in vivo	:	Species: Mouse Application Route: Oral Method: OECD Test Guideline 474 Result: negative
Germ cell mutagenicity-Assessment	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

titanium tetrabutanolate:

Germ cell mutagenicity-Assessment	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

butan-1-ol:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster lung cells
Result: negative

Genotoxicity in vivo : Test Type: in vivo assay
Species: Mouse (male and female)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

Hydrocarbons, C9, aromatics:

Germ cell mutagenicity-Assessment : Animal testing did not show any mutagenic effects.

zinc oxide:

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Product:

Remarks : No data available

Components:

n-butyl acetate:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Hydrocarbons, C9, aromatics:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

zinc oxide:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

n-butyl acetate:

Effects on fertility : Test Type: Two-generation study
Species: Rat
Application Route: inhalation (vapour)
General Toxicity - Parent: NOAEC: 750 mg/l
General Toxicity F1: NOAEC: 750 mg/l
General Toxicity F2: NOAEC: 750 mg/l
Method: OECD Test Guideline 416
Result: Embryotoxic effects and adverse effects on the offspring were detected.

Reproductive toxicity - Assessment : - Fertility -

No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.
- Teratogenicity -

No toxicity to reproduction

titanium tetrabutanolate:

Reproductive toxicity - Assessment : - Fertility -

No toxicity to reproduction

Hydrocarbons, C9, aromatics:

Reproductive toxicity - Assessment : - Fertility -

No toxicity to reproduction

zinc oxide:

Reproductive toxicity - Assessment : - Fertility -

No toxicity to reproduction
- Teratogenicity -

No toxicity to reproduction

STOT - single exposure

Product:

Remarks : No data available

Components:

n-butyl acetate:

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.

titanium tetrabutanolate:

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 toxicant, single exposure, category 3 with narcotic effects.

butan-1-ol:

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.

Hydrocarbons, C9, aromatics:

Exposure routes	:	Inhalation
Target Organs	:	Respiratory system
Assessment	:	May cause respiratory irritation.
Exposure routes	:	Inhalation
Target Organs	:	Central nervous system
Assessment	:	May cause drowsiness or dizziness.

zinc oxide:

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

STOT - repeated exposure

Product:

Remarks	:	No data available

Components:

n-butyl acetate:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

butan-1-ol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Hydrocarbons, C9, aromatics:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

zinc oxide:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Product:

Remarks : This information is not available.

Components:

n-butyl acetate:

Species : Rat
NOAEL : 125 mg/kg
Application Route : Oral

Hydrocarbons, C9, aromatics:

Repeated dose toxicity - Assessment : Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Aspiration toxicity

Product:

This information is not available.

Components:

n-butyl acetate:

No aspiration toxicity classification

titanium tetrabutanolate:
No aspiration toxicity classification

butan-1-ol:
No aspiration toxicity classification

Hydrocarbons, C11-C13, isoalkanes, <2% aromatics:
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.

Hydrocarbons, C9, aromatics:
May be fatal if swallowed and enters airways.

zinc oxide:
No aspiration toxicity classification

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks	:	Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance. Danger of very serious irreversible effects.

Components:

zinc sulphide:

Remarks	:	Information given is based on data on the components and the toxicology of similar products.

SECTION 12: Ecological information

12.1 Toxicity

Product:

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

Components:

n-butyl acetate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 18 mg/l Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia (water flea)): 44 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 397 mg/l Exposure time: 72 h Test Type: static test
Toxicity to microorganisms	:	EC50 (Tetrahymena pyriformis): 356 mg/l Exposure time: 40 h Test Type: Growth inhibition
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 23 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: Reproduction Test GLP: yes

titanium tetrabutanolate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 1.740 mg/l Exposure time: 96 h Test substance: Butan-1-ol
Toxicity to daphnia and other	:	EC50 (Daphnia magna (Water flea)): 1.983 mg/l

aquatic invertebrates		Exposure time: 48 h Test substance: Butan-1-ol
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 225 mg/l Exposure time: 96 h Test substance: Butan-1-ol Method: OECD Test Guideline 201

butan-1-ol:

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

Hydrocarbons, C9, aromatics:

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

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 (Danio rerio (zebra fish)): 1,55 mg/l Exposure time: 96 h Test Type: static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 0,136 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (activated sludge): > 1.000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	0,04 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Method: OECD Test Guideline 211
M-Factor (Chronic aquatic toxicity)	:	1

zinc sulphide:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic	:	EC50 (algae): > 100 mg/l

plants Exposure time: 72 h

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Physico-chemical removability : Remarks: No data available

Components:

n-butyl acetate:

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

titanium tetrabutanolate:

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

butan-1-ol:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Result: rapidly biodegradable
Biodegradation: > 92 %
Exposure time: 28 d

Hydrocarbons, C9, aromatics:

Biodegradability : Result: rapidly biodegradable

zinc oxide:

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

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Components:

n-butyl acetate:

Partition coefficient: n-octanol/water : log Pow: 2,3 (25 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: yes

titanium tetrabutanolate:

Partition coefficient: n-octanol/water : log Pow: 0,84 - 0,88

butan-1-ol:

Partition coefficient: n-octanol/water : log Pow: 1 (25 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: yes

Hydrocarbons, C11-C13, isoalkanes, <2% aromatics:

Partition coefficient: n-octanol/water : log Pow: 1,99 - 7,22

Hydrocarbons, C9, aromatics:

Partition coefficient: n-octanol/water : log Pow: 3,7 - 4,5

isobutane:

Partition coefficient: n-octanol/water : log Pow: 2,88
Method: OECD Test Guideline 107

propane:

Partition coefficient: n-octanol/water : log Pow: 2,36

butane:

Partition coefficient: n-octanol/water : log Pow: 2,89
Method: OECD Test Guideline 107

12.4 Mobility in soil

Product:

Mobility : Remarks: No data available

Distribution among environmental compartments : Remarks: 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:

n-butyl acetate:

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

zinc oxide:

Assessment : Remarks: Not applicable

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not dispose of with domestic refuse.
Dispose of as hazardous waste in compliance with local and national regulations.

Waste codes should be assigned by the user based on the application for which the product was used.

Contaminated packaging : Packaging that is not properly emptied must be disposed of as the unused product.
Offer empty spray cans to an established disposal company.

Pressurized container: Do not pierce or burn, even after use.

The following Waste Codes are only suggestions:

Waste Code : unused product, packagings not completely emptied
16 05 04**, gases in pressure containers (including halons) containing hazardous substances

SECTION 14: Transport information

14.1 UN number or ID 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)

ADN : 2
ADR : 2
RID : 2
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 (Cargo)

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

IATA (Passenger)

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

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 75 If you intend to use this product as tattoo ink, please contact your vendor.
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). (EU SVHC)	:	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer (EC 1005/2009)	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast) (EU POP)	:	Not applicable
Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals (EU PIC)	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV) (EU. REACH-Annex XIV)	:	Not applicable
Regulation (EU) 2019/1148 on the marketing and use of explosives precursors	:	Not applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P2 P5c P3a	FLAMMABLE AEROSOLS

18	Liquefied flammable gases (including LPG) and natural gas

Water hazard class (Germany)	:	WGK 1 slightly hazardous to water Classification according to AwSV, Annex 1 (5.2)
TA Luft List (Germany)	:	5.2.1: Total dust: others: 6,77 % 5.2.2: Inorganic substances in powdered form: Not applicable 5.2.4: Inorganic substances in gaseous form: Not applicable 5.2.5: Organic Substances: Class 1: < 0,01 % others: 1,43 % 5.2.7.1.1: Carcinogenic substance: Class 3: 0,06 % 5.2.7.1.1: Quartz fine dust PM4: others: < 0,01 % 5.2.7.1.1: Formaldehyde: Not applicable 5.2.7.1.1: fibres: Not applicable 5.2.7.2: Poorly degradable, easily enrichable and highly toxic organic substances: Not applicable
Volatile organic compounds	:	Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: 93,16 %

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment

This information is not available.

SECTION 16: Other information

Full text of H-Statements

H220	:	Extremely flammable gas.
H226	:	Flammable liquid and vapour.

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.
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.
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Note C	:	Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.
Note P	:	The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.
Note U (table 3.1)	:	When put on the market gases have to be classified as “Gases under pressure”, in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case. The following codes are assigned: Press. Gas (Comp.) Press. Gas (Liq.) Press. Gas (Ref. Liq.) Press. Gas (Diss.) Aerosols shall not be classified as gases under pressure (See Annex I, Part 2, Section 2.3.2.1, Note 2).
2019/1831/EU	:	Europe. Commission Directive 2019/1831/EU establishing a fifth list of indicative occupational exposure limit values
DE DFG BAT	:	Germany. MAK BAT Annex XIII
DE DFG MAK	:	Germany. MAK BAT Annex IIa
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
TRGS 903	:	TRGS 903 - Biological limit values
2019/1831/EU / TWA	:	Limit Value - eight hours

2019/1831/EU / STEL	:	Short term exposure limit
DE DFG MAK / MAK	:	MAK value
DE TRGS 900 / AGW	:	Time Weighted Average

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

Further information

Classification of the mixture:		**Classification procedure:**
Aerosol 1	H222, H229	Based on product data or assessment
Eye Dam. 1	H318	Calculation method
STOT SE 3	H336	Calculation method
Aquatic Chronic 3	H412	Calculation method

|| Relevant changes compared to the last edition are highlighted at the left margin. This version replaces all previous editions.

UNIMOLY C 220 Spray

Version	Revision Date:	Date of last issue: -	Print Date:
1.0	01.08.2024	Date of first issue: 01.08.2024	01.08.2024

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