SAFETY DATA SHEET

Based upon Regulation (EC) No 1907/2006, as amended by Regulation (EU) No 2020/878

NOVALUBE

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

1.1. Product identifier

Product name : NOVALUBE
Registration number REACH : Not applicable (mixture)
Product type REACH : Mixture

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

1.2.1 Relevant identified uses

Lubricating grease

1.2.2 Uses advised against

No uses advised against

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet

Novatio*
Industrielaan 5B
B-2250 Olen
☎ +32 14 25 76 40
🖷 +32 14 22 02 66
info@novatio.be
*NOVATIO is a registered trademark of Novatech International N.V.

Manufacturer of the product

Novatech International N.V.
Industrielaan 5B
B-2250 Olen
☎ +32 14 85 97 37
🖷 +32 14 85 97 38
info@novatech.be

1.4. Emergency telephone number

24h/24h (Telephone advice: English, French, German, Dutch) :
+32 14 58 45 45 (BIG)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
Eye Dam.	category 1	H318: Causes serious eye damage.
Aquatic Acute	category 1	H400: Very toxic to aquatic life.
Aquatic Chronic	category 2	H411: Toxic to aquatic life with long lasting effects.

2.2. Label elements

Contains: calcium dihydroxide.

Signal word Danger

H-statements

H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.

P-statements

P280 Wear eye protection.
P273 Avoid release to the environment.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P391 Collect spillage.

2.3. Other hazards

No other hazards known

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark	M-factors and ATE
distillates (petroleum), hydrotreated light naphthenic 01-2119480375-34	64742-53-6 265-156-6	10% ≤C≤25%	Asp. Tox. 1; H304	(1)(2)(6)(10)	Constituent	
calcium dihydroxide 01-2119475151-45	1305-62-0 215-137-3	5%≤C<10%	Eye Dam. 1; H318 Skin Irrit. 2; H315 STOT SE 3; H335	(1)(2)	Constituent	
aluminium powder 01-2119529243-45	7429-90-5 231-072-3	3%≤C≤5%	Flam. Sol. 1; H228 Water-react. 2; H261	(1)(2)(10)	Constituent	
copper	7440-50-8 231-159-6	3%≤C≤5%	Acute Tox. 4; H302 Aquatic Acute 1; H400 Aquatic Chronic 2; H411	(1)(2)(10)	Constituent	M: 10 (Acute, ECHA)
zinc oxide 01-2119463881-32	1314-13-2 215-222-5	3%≤C≤5%	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	(1)(2)	Constituent	M: 1 (Acute, ECHA) M: 1 (Chronic, ECHA)
zinc powder - zinc dust (stabilised) 01-2119467174-37	7440-66-6 231-175-3	1%≤C≤3%	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	(1)(10)	Constituent	M: 1 (Acute, ECHA (registration dossier)) M: 1 (Chronic, ECHA (registration dossier))

(1) For H- and EUH-statements in full: see section 16
(2) Substance with a Community workplace exposure limit
(6) Enumerated in Annex VI of Regulation (EC) No. 1272/2008 but the classification has been adapted after evaluation of available test data
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006

SECTION 4: First aid measures

4.1. Description of first aid measures

General:
Observe (own) safety. If possible, approach victim and check vital functions. In case of injury and/or intoxication, call the European emergency number 112. Treat symptoms starting with most life-threatening injuries and disorders. Keep victim under observation, possibility of delayed symptoms.

After inhalation:
Remove victim into fresh air. In case of respiratory problems, consult a doctor/medical service.

After skin contact:
If possible, wipe up/dry remove chemical. Then rinse/shower immediately with (lukewarm) water. If irritation persists, consult a doctor/medical service.

After eye contact:
Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a doctor/medical service.

After ingestion:
Rinse mouth with water. If you feel unwell, consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

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

4.2.1 Acute symptoms

After inhalation:
No effects known.

After skin contact:
No effects known.

After eye contact:
Corrosion of the eye tissue.

After ingestion:
No effects known.

4.2.2 Delayed symptoms

No effects known.

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

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:

Small fire: Quick-acting ABC powder extinguisher, Quick-acting BC powder extinguisher, Quick-acting class B foam extinguisher, Quick-acting CO2 extinguisher.

Major fire: Class B foam (not alcohol-resistant).

5.1.2 Unsuitable extinguishing media:

Small fire: Water (quick-acting extinguisher, reel); risk of puddle expansion.

Major fire: Water; risk of puddle expansion.

5.2. Special hazards arising from the substance or mixture

Upon combustion CO and CO2 are formed and formation of metal oxides.

5.3. Advice for firefighters

5.3.1 Instructions:

Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Use water moderately and if possible collect or contain it. Take account of environmentally hazardous firefighting water.

5.3.2 Special protective equipment for fire-fighters:

Gloves (EN 374). Safety glasses (EN 166). Protective clothing (EN 14605 or EN 13034). Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No naked flames. Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

6.1.1 Protective equipment for non-emergency personnel

See section 8.2

6.1.2 Protective equipment for emergency responders

Gloves (EN 374). Safety glasses (EN 166). Protective clothing (EN 14605 or EN 13034).

Suitable protective clothing

See section 8.2

6.2. Environmental precautions

Contain released product. Dam up the solid spill. Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

Cover the solid spill with inert absorbent material. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See section 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

7.1. Precautions for safe handling

Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Do not discharge the waste into the drain.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Meet the legal requirements. Store in a cool area. Store in a dry area. Keep container in a well-ventilated place. Keep out of direct sunlight. Keep only in the original container. Keep container tightly closed.

7.2.2 Keep away from:

Heat sources.

7.2.3 Suitable packaging material:

No data available

7.2.4 Non suitable packaging material:

No data available

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

EU

Calcium dihydroxide	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	1 mg/m³ **(1)**
	Short time value (Indicative occupational exposure limit value)	4 mg/m³ **(1)**

(1) (2): Respirable fraction

Belgium

Aluminium (métal et composés insolubles)	Time-weighted average exposure limit 8 h	1 mg/m³ **(1)**
Calcium (dihydroxyde de)	Time-weighted average exposure limit 8 h	1 mg/m³ **(1)**
	Short time value	4 mg/m³ **(1)**
Cuivre (en Cu)	Time-weighted average exposure limit 8 h	0.2 mg/m³ **(2)**
	Time-weighted average exposure limit 8 h	1 mg/m³ **(3)**
Huiles minérales (brouillards)	Time-weighted average exposure limit 8 h	5 mg/m³
	Short time value	10 mg/m³
Zinc (oxyde de)	Time-weighted average exposure limit 8 h	2 mg/m³ **(1)**
	Short time value	10 mg/m³ **(1)**

(1) Fraction alvéolaire
(2) fumées
(3) poussières et brouillards de

The Netherlands

Calcium-dihydroxide	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	0.33 ppm **(1)**
	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	1 mg/m³ **(1)**
	Short time value (Public occupational exposure limit value)	1.3 ppm **(1)**
	Short time value (Public occupational exposure limit value)	4 mg/m³ **(1)**
Koper en anorganische koperverbindingen	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	0.038 ppm **(2)**
	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	0.1 mg/m³ **(2)**
Olienevel (minerale olie)	Time-weighted average exposure limit 8 h (Public occupational exposure limit value)	5 mg/m³

(1) respirabel
(2) inhaleerbaar

France

Aluminium (métal)	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	10 mg/m³
Aluminium (pulvérulent)	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	5 mg/m³
Calcium (hydroxyde de)	Time-weighted average exposure limit 8 h (VRI: Valeur réglementaire indicative)	1 mg/m³ **(1)**
	Short time value (VRI: Valeur réglementaire indicative)	4 mg/m³ **(1)**
Cuivre, en Cu	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	1 mg/m³ **(2)**
	Short time value (VL: Valeur non réglementaire indicative)	2 mg/m³ **(2)**
Cuivre	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	0.2 mg/m³ **(3)**
Zinc (oxyde de)	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	10 mg/m³ **(2)**
	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	5 mg/m³ **(3)**

(1) La valeur limite concerne la fraction alvéolaire
(2) poussières
(3) fumées

Germany

Aluminium und seine schwerlöslichen Verbindungen	Time-weighted average exposure limit 8 h (MAK)	0.05 mg/m³ **(1)**
	Time-weighted average exposure limit 8 h (MAK)	0.5 mg/m³ **(2)**
Calciumdihydroxid	Time-weighted average exposure limit 8 h (TRGS 900)	1 mg/m³ **(3)**
Zink und seine anorganischen Verbindungen	Time-weighted average exposure limit 8 h (MAK)	0.1 mg/m³ **(4)**
	Time-weighted average exposure limit 8 h (MAK)	2 mg/m³ **(5)**

(1) Alveolengängige Fraktion; UF: II(8)
(2) Einatembare Fraktion; UF: II(8)
(3) Einatembare Fraktion; UF: 2 (I)
(4) Alveolengängige Fraktion; UF: I(4)
(5) Einatembare Fraktion; UF: I(2); Zinkchlorid: Kurzzeitkategorie I(1)

Austria

Aluminium (als Metall) Aluminiumoxid und Aluminiumhydroxid	Tagesmittelwert (MAK)	10 mg/m³ **(1)**
	Tagesmittelwert (MAK)	5 mg/m³ **(2)**
	Kurzzeitwert 60(Miw) 2x	10 mg/m³ **(2)**
	Kurzzeitwert 60(Miw) 2x	20 mg/m³ **(1)**
Calciumdihydroxid	Tagesmittelwert (MAK)	1 mg/m³ **(1)**
	Kurzzeitwert 5(Mow) 8x (MAK)	4 mg/m³ **(1)**
Kupfer und seine Verbindungen(als Rauch)	Tagesmittelwert (MAK)	0.1 mg/m³ **(3)**
	Kurzzeitwert 15(Miw) 4x (MAK)	0.4 mg/m³ **(3)**
Kupfer und seine Verbindungen	Tagesmittelwert (MAK)	1 mg/m³ **(4)**
	Kurzzeitwert 15(Miw) 4x (MAK)	4 mg/m³ **(4)**
Zinkoxid-Rauch	Tagesmittelwert (MAK)	5 mg/m³ **(2)**

(1) Einatembare Fraktion
(2) Alveolengängige Fraktion
(3) Alveolengängige Fraktion; als Cu berechnet
(4) Einatembare Fraktion; als Cu berechnet

UK

Aluminium metal	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	10 mg/m³ **(1)**
	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	4 mg/m³ **(2)**
Calcium hydroxide	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	1 mg/m³ **(3)**
	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	5 mg/m³ **(4)**
	Short time value (Workplace exposure limit (EH40/2005))	4 mg/m³ **(3)**
Copper and compounds: dusts and mists (as Cu)	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	1 mg/m³
	Short time value (Workplace exposure limit (EH40/2005))	2 mg/m³
Copper fume	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	0.2 mg/m³

(1) Inhalable dust
(2) Respirable dust
(3) Respirable fraction
(4) Inhalable fraction

USA (TLV-ACGIH)

Aluminium metal and insoluble compounds	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	1 mg/m³ **(1)**
Calcium hydroxide	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	5 mg/m³
Copper dusts and mists, as Cu	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	1 mg/m³
Copper fume, as Cu	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	0.2 mg/m³
Mineral oil, excluding metal working fluids: Pure, highly and severely refined	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	5 mg/m³ **(2)**
Zinc oxide	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	2 mg/m³ **(1)**
	Short time value (TLV - Adopted Value)	10 mg/m³ **(1)**

(1) (R): Respirable fraction
(2) (I): Inhalable fraction

b) National biological limit values

If limit values are applicable and available these will be listed below.

Germany

Aluminium (Aluminium)	Urin: am schichtende, bei langzeitexposition nach mehreren vorangegangenen schichten	50 µg/g Kreatinin	

8.1.2 Sampling methods

Product name	Test	Number
Aluminium	NIOSH	7013
Aluminum (Al)	NIOSH	7302
Aluminum (Al)	NIOSH	7304
Aluminum (Al)	NIOSH	7306
Aluminum (Al)	NIOSH	8310

Product name	Test	Number
Aluminum (Elements)	NIOSH	7300
Aluminum (Elements, aqua regia ashing)	NIOSH	7301
Aluminum (Elements, hot block/HCl/HNO3 digestion)	NIOSH	7303
Aluminum	OSHA	ID 121
Calciumdihydroxide	NIOSH	7020
Copper (Cu)	NIOSH	7302
Copper (Cu)	NIOSH	7304
Copper (Cu)	NIOSH	7306
Copper (Cu)	NIOSH	8005
Copper (Cu)	NIOSH	8200
Copper (Cu)	NIOSH	8310
Copper (Elements on wipes)	NIOSH	9102
Copper (Elements)	NIOSH	7300
Copper (Elements, aqua regia ashing)	NIOSH	7301
Copper (Elements, hot block/HCl/HNO3 digestion)	NIOSH	7303
Copper Dust and fume	NIOSH	7029
Copper	OSHA	1006
Copper	OSHA	ID 121
Copper	OSHA	ID 125G
Copper	OSHA	ID 206
Zinc & Cpds (as Zn)	NIOSH	7030
Zinc (Elements on wipes)	NIOSH	9102
Zinc (Elements)	NIOSH	7300
Zinc (Elements, aqua regia ashing)	NIOSH	7301
Zinc (Elements, hot block/HCl/HNO3 digestion)	NIOSH	7303
Zinc (Zn)	NIOSH	7302
Zinc (Zn)	NIOSH	7304
Zinc (Zn)	NIOSH	7306
Zinc (Zn)	NIOSH	8005
Zinc (Zn)	NIOSH	8200
Zinc (Zn)	NIOSH	8310
Zinc Oxide	NIOSH	7030
Zinc Oxide	NIOSH	7502
Zinc Oxide	OSHA	ID 121
Zinc Oxide	OSHA	ID 143
Zinc	NIOSH	7030
Zinc	OSHA	1006
Zinc	OSHA	ID 121
Zinc	OSHA	ID 125G

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 Threshold values

DNEL/DMEL - Workers

distillates (petroleum), hydrotreated light naphthenic

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	2.73 mg/m³	
	Long-term local effects inhalation	5.58 mg/m³	
	Long-term systemic effects dermal	0.97 mg/kg bw/day	

calcium dihydroxide

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	1 mg/m³	
	Acute local effects inhalation	4 mg/m³	

aluminium powder

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	3.72 mg/m³	
	Long-term local effects inhalation	3.72 mg/m³	

copper

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects dermal	137 mg/kg bw/day	
	Acute systemic effects dermal	273 mg/m³	

DNEL/DMEL - General population

distillates (petroleum), hydrotreated light naphthenic

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects oral	0.74 mg/kg bw/day	

calcium dihydroxide

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term local effects inhalation	1 mg/m³	
	Acute local effects inhalation	4 mg/m³	

aluminium powder

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects oral	7.9 mg/kg bw/day	

copper

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects dermal	137 mg/kg bw/day	
	Acute systemic effects dermal	273 mg/kg bw/day	
	Long-term systemic effects oral	0.041 mg/kg bw/day	

PNEC

distillates (petroleum), hydrotreated light naphthenic

Compartments	Value	Remark
Oral	9.33 mg/kg food	

calcium dihydroxide

Compartments	Value	Remark
Fresh water	0.49 mg/l	
Fresh water (intermittent releases)	0.49 mg/l	
Marine water	0.32 mg/l	
STP	3 mg/l	
Soil	1080 mg/kg soil dw	

aluminium powder

Compartments	Value	Remark
Fresh water	74.9 µg/l	
STP	20 mg/l	

copper

Compartments	Value	Remark
Fresh water	7.8 µg/l	
Salt water	5.2 µg/l	
STP	230 µg/l	
Fresh water sediment	87 mg/kg sediment dw	
Marine water sediment	676 mg/kg sediment dw	
Soil	65 mg/kg soil dw	

zinc oxide

Compartments	Value	Remark
Fresh water	17.9 µg/l	Zinc ion
Marine water	9 µg/l	Zinc ion
STP	124.5 µg/l	Zinc ion
Fresh water sediment	182.8 mg/kg sediment dw	Zinc ion
Marine water sediment	201.9 mg/kg sediment dw	Zinc ion
Soil	103.4 mg/kg soil dw	Zinc ion

zinc powder - zinc dust (stabilised)

Compartments	Value	Remark
Fresh water	19.7 µg/l	Zinc ion
Marine water	7.7 µg/l	Zinc ion
STP	100 µg/l	Zinc ion
Fresh water sediment	146.9 mg/kg sediment dw	Zinc ion
Marine water sediment	162.2 mg/kg sediment dw	Zinc ion
Soil	83.1 mg/kg soil dw	Zinc ion

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1 Appropriate engineering controls

Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

8.2.2 Individual protection measures, such as personal protective equipment

Observe strict hygiene. Do not eat, drink or smoke during work.

a) Respiratory protection:

Full face mask with filter type A at conc. in air > exposure limit.

b) Hand protection:

Protective gloves against chemicals (EN 374).

Materials	Measured breakthrough time	Thickness	Protection index	Remark
nitrile rubber	> 240 minutes	0.4 mm	Class 5	
viton	> 480 minutes	0.7 mm	Class 6	

c) Eye protection:
Safety glasses (EN 166).

d) Skin protection:
Protective clothing (EN 14605 or EN 13034).

8.2.3 Environmental exposure controls:
See sections 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Paste
Colour	Grey
Odour	Characteristic odour
Odour threshold	No data available in the literature
Melting point	No data available in the literature
Boiling point	No data available in the literature
Flammability	Not classified as flammable
Explosion limits	No data available in the literature
Flash point	170 °C ; Closed cup
Auto-ignition temperature	No data available in the literature
Decomposition temperature	No data available in the literature
pH	Not applicable (non-soluble in water)
Kinematic viscosity	No data available in the literature
Dynamic viscosity	No data available in the literature
Solubility	Water ; insoluble
Log Kow	Not applicable (mixture)
Vapour pressure	No data available in the literature
Absolute density	1200 kg/m³ ; 20 °C
Relative density	1.20 ; 20 °C
Relative vapour density	No data available in the literature
Particle size	No data available in the literature

9.2. Other information
No data available

SECTION 10: Stability and reactivity

10.1. Reactivity
Temperature above flashpoint: higher fire/explosion hazard.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
Precautionary measures
Keep away from naked flames/heat.

10.5. Incompatible materials
No data available.

10.6. Hazardous decomposition products
Upon combustion CO and CO2 are formed and formation of metal oxides.

SECTION 11: Toxicological information

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

Acute toxicity

NOVALUBE
No (test)data on the mixture available
Judgement is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 401	> 5000 mg/kg bw		Rat (male / female)	Read-across	
Dermal	LD50	Equivalent to OECD 402	> 2000 mg/kg bw	24 h	Rabbit (male / female)	Read-across	
Inhalation (aerosol)	LC50	OECD 403	> 5.53 mg/l air	4 h	Rat (male / female)	Read-across	

calcium dihydroxide

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 425	> 2000 mg/kg bw		Rat (female)	Experimental value	
Dermal	LD50	OECD 402	> 2500 mg/kg bw	24 h	Rabbit (male / female)	Experimental value	
Inhalation (dust)	LC50	OECD 436	> 6.04 mg/l	4 h	Rat (male / female)	Experimental value	

aluminium powder

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	> 15900 mg/kg bw		Rat (male / female)	Read-across	
Dermal						Data waiving	
Inhalation (aerosol)	LC50	Equivalent to OECD 403	> 0.89 mg/l air	4 h	Rat (male)	Experimental value	

copper

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 401	482 mg/kg bw		Rat (male / female)	Experimental value	

zinc oxide

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	> 5000 mg/kg		Rat (male / female)	Experimental value	
Dermal	LD50	OECD 402	> 2000 mg/kg bw	24 h	Rat (male / female)	Experimental value	
Inhalation (dust)	LC50	Equivalent to OECD 403	> 5.7 mg/l	4 h	Rat (male / female)	Experimental value	

zinc powder - zinc dust (stabilised)

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 401	> 2000 mg/kg bw		Rat (male / female)	Experimental value	
Dermal						Data waiving	
Inhalation (dust)	LD50	OECD 403	> 5.41 mg/l air	4 h	Rat (male / female)	Experimental value	

Conclusion

Not classified for acute toxicity

Corrosion/irritation

NOVALUBE

No (test)data on the mixture available

Classification is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	Equivalent to OECD 405	30 seconds	24 hours	Rabbit	Read-across	Single treatment with rinsing
Skin	Slightly irritating	Equivalent to OECD 404	24 h	24; 48; 72 hours	Rabbit	Experimental value	
Skin	Not irritating	Human observation	4 week(s)		Human	Read-across	

calcium dihydroxide

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage	OECD 405	1 h	1; 24; 48; 72 hours	Rabbit	Experimental value	
Skin	Irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	
Inhalation	Irritating; STOT SE cat.3					Literature study	

aluminium powder

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	Draize Test		24; 48; 72 hours	Rabbit	Read-across	
Skin	Not irritating	Equivalent to OECD 404	24 h	24; 48; 72 hours	Rabbit	Read-across	

zinc oxide

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405	24 h	24; 48; 72 hours	Rabbit	Experimental value	Single treatment with rinsing
Skin	Not irritating	16 CFR 1500.41	24 h	24; 72 hours	Rabbit	Experimental value	
In vitro	Not corrosive	OECD 431	1 h		Reconstructed human epidermis	Experimental value	

zinc powder - zinc dust (stabilised)

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405	24 h	24; 72 hours	Rabbit	Experimental value	Single treatment with rinsing
In vitro	Not irritating	OECD 439			Reconstructed human epidermis	Experimental value	

Conclusion

Causes serious eye damage.
Not classified as irritating to the respiratory system
Not classified as irritating to the skin

Respiratory or skin sensitisation

NOVALUBE

No (test)data on the mixture available

Judgement is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 406			Guinea pig (male)	Read-across	
Skin	Not sensitizing	Human observation	4 week(s)		Human (male / female)	Read-across	

calcium dihydroxide

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 429			Mouse (female)	Experimental value	

aluminium powder

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing				Guinea pig (male)	Read-across	
Intratracheal instillation	Not sensitizing				Mouse (male)	Read-across	

zinc oxide

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 406			Guinea pig (female)	Experimental value	
Skin	Not sensitizing	Human observation	2 days (continuous)	72 hours	Human	Experimental value	

zinc powder - zinc dust (stabilised)

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	OECD 406			Guinea pig (male / female)	Read-across	

Conclusion

Not classified as sensitizing for skin

Not classified as sensitizing for inhalation

Specific target organ toxicity

NOVALUBE

No (test)data on the mixture available

Judgement is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	LOAEL	Equivalent to OECD 408	125 mg/kg bw/day	Overall effects	13 weeks (5 days / week)	Rat (male)	Read-across	
Dermal	NOAEL systemic effects	OECD 410	1000 mg/kg bw/day	No adverse systemic effects	4 weeks (6h / day, 3 days / week)	Rabbit (male / female)	Read-across	
Inhalation	NOEC	Equivalent to OECD 412	220 mg/m³ air	Lungs (no effect)	4 weeks (6h / day, 5 days / week)	Rat (male / female)	Read-across	
Inhalation	NOAEC	Equivalent to OECD 412	> 980 mg/m³ air	No adverse systemic effects	4 weeks (6h / day, 5 days / week)	Rat (male / female)	Read-across	

calcium dihydroxide

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL	OECD 422	1000 mg/kg bw/day	No effect		Rat (male / female)	Experimental value	
Dermal							Data waiving	
Inhalation (dust)	NOAEC	OECD 412	0.107 mg/l	No effect	2 weeks (6h / day, 5 days / week)	Rat (male / female)	Experimental value	

aluminium powder

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL	OECD 422	1000 mg/kg bw/day	No effect	28 day(s) - 53 day (s)	Rat (male / female)	Read-across	
Inhalation (dust)	LOAEC	Equivalent to OECD 413	50 mg/m³ air	Lungs (lung tissue affection/degeneration)	25 weeks (6h / day, 5 days / week) - 52 weeks (6h / day, 5 days / week)	Rat	Experimental value	

zinc oxide

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL	OECD 408	31.25 mg/kg bw/day	No effect	90 day(s)	Rat (male / female)	Experimental value	
Oral (diet)	NOEL	OECD 408	3000 ppm	No effect	13 weeks (daily)	Rat (male / female)	Read-across	
Inhalation (aerosol)	NOAEL	OECD 413	1.48 mg/m³ air	No effect	13 weeks (6h / day, 5 days / week)	Rat (male)	Experimental value	

zinc powder - zinc dust (stabilised)

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL	OECD 408	31.52 mg/kg bw/day	No effect	13 weeks (daily)	Rat (male / female)	Experimental value	
Dermal	NOAEL	OECD 411	1000 mg/kg bw/day	No effect	90 day(s)	Rat (male / female)	Experimental value	
Inhalation (aerosol)	NOAEC	OECD 413	1.48 mg/m³	No effect	13 weeks (6h / day, 5 days / week)	Rat (male)	Experimental value	

Conclusion

Not classified for subchronic toxicity

Mutagenicity (in vitro)

NOVALUBE

No (test)data on the mixture available

Judgement is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	Equivalent to OECD 473	Chinese hamster ovary (CHO)	No effect	Experimental value	
Negative with metabolic activation	Equivalent to OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value	

calcium dihydroxide

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S. typhimurium and E. coli)		Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 473	Human lymphocytes		Experimental value	

aluminium powder

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 476	Mouse (lymphoma L5178Y cells)	No effect	Read-across	
Positive without metabolic activation	Equivalent to OECD 473	Human lymphocytes		Read-across	

zinc oxide

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S. typhimurium and E. coli)	No effect	Experimental value	
Ambiguous	OECD 476	Mouse (lymphoma L5178Y cells)		Experimental value	

zinc powder - zinc dust (stabilised)

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S. typhimurium and E. coli)		Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 473	Chinese hamster lung fibroblasts (V79)		Experimental value	

Mutagenicity (in vivo)

NOVALUBE

No (test)data on the mixture available

Judgement is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Intraperitoneal)	OECD 474		Mouse (male / female)	Bone marrow (no effect)	Read-across	Single intraperitoneal injection

aluminium powder

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Oral (stomach tube))	OECD 474	2 dose(s)/24-hour interval	Rat (male / female)	Bone marrow (no effect)	Read-across	

zinc oxide

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Inhalation (aerosol))	OECD 489	14 days (6h / day)	Rat (male)	No effect	Experimental value	

zinc powder - zinc dust (stabilised)

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Inhalation (aerosol))	OECD 489	14 days (6h / day)	Rat (male)	No effect	Experimental value	

Conclusion

Not classified for mutagenic or genotoxic toxicity

Carcinogenicity

NOVALUBE

No (test)data on the mixture available

Judgement is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Dermal	Dose level	Equivalent to OECD 453	100 mg/kg bw/day	No carcinogenic effect	24 months (2 times/week)	Mouse (male)	Read-across	

calcium dihydroxide

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (drinking water)	NOAEL	Carcinogenic toxicity study	2150 mg/kg bw/day - 2280 mg/kg bw/day	No carcinogenic effect	104 week(s)	Rat (male / female)	Read-across	

aluminium powder

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Inhalation (dust)	LOAEC	Equivalent to OECD 413	15 mg/m³ air	Lungs (lung tissue affection/degeneration)	52 weeks (6h / day, 5 days / week)	Rat	Experimental value	

zinc oxide

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (drinking water)	NOAEL	Carcinogenic toxicity study	> 22000 mg/l	No carcinogenic effect	52 week(s)	Mouse (male / female)	Read-across	

zinc powder - zinc dust (stabilised)

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (drinking water)	NOAEL	Carcinogenic toxicity study	≥ 22000 mg/l	No carcinogenic effect	52 weeks (daily)	Mouse (male / female)	Experimental value	

Conclusion

Not classified for carcinogenicity

Reproductive toxicity

NOVALUBE

No (test)data on the mixture available

Judgement is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Dermal)	NOAEL	Equivalent to OECD 414	≥ 2000 mg/kg bw/day	19 days (gestation, daily)	Rat	No effect	Read-across	
Maternal toxicity (Dermal)	LOAEL	Equivalent to OECD 414	125 mg/kg bw/day	19 days (gestation, daily)	Rat	Maternal toxicity	Read-across	
Effects on fertility (Oral (stomach tube))	NOAEL (P/F1)	OECD 421	≥ 1000 mg/kg bw/day	30 day(s) - 39 day (s)	Rat (male / female)	No effect	Read-across	

calcium dihydroxide

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL	Equivalent to OECD 414	≥ 440 mg/kg bw/day	10 days (gestation, daily)	Mouse	No effect	Read-across	
Maternal toxicity (Oral (stomach tube))	NOAEL	Equivalent to OECD 414	≥ 440 mg/kg bw/day	10 days (gestation, daily)	Mouse	No effect	Read-across	
Effects on fertility (Oral (stomach tube))	NOEL	OECD 422	1000 mg/kg bw/day		Rat (male / female)	No effect	Experimental value	

aluminium powder

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL	Equivalent to OECD 414	266 mg/kg bw/day	10 day(s)	Rat	Foetus (no effect)	Read-across	
Maternal toxicity (Oral (stomach tube))	NOAEL	Equivalent to OECD 414	266 mg/kg bw/day	10 day(s)	Rat	No effect	Read-across	
Effects on fertility (Oral (stomach tube))	NOAEL	OECD 422	1000 mg/kg bw/day	28 day(s) - 53 day (s)	Rat (male / female)	No effect	Read-across	

zinc oxide

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Inhalation (aerosol))	NOAEC	OECD 414	7.5 mg/kg bw/day	14 days (6h / day)	Rat	Foetus (no effect)	Experimental value	
Maternal toxicity (Inhalation (aerosol))	NOAEC	OECD 414	1.5 mg/kg bw/day	14 days (6h / day)	Rat	No effect	Experimental value	
Effects on fertility (Oral (stomach tube))	LOAEL (P)	Equivalent to OECD 416	7.5 mg/kg bw/day	22 weeks (daily)	Rat (male / female)	Reproductive performance	Experimental value	

zinc powder - zinc dust (stabilised)

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Inhalation (aerosol))	NOAEC	OECD 414	7.5 mg/m³ air	14 days (6h / day)	Rat	No effect	Experimental value	
Maternal toxicity (Inhalation (aerosol))	NOAEC	OECD 414	1.5 mg/m³ air	14 days (6h / day)	Rat	No effect	Experimental value	
Effects on fertility (Oral (stomach tube))	NOAEL	Equivalent to OECD 416	7.5 mg/kg bw/day		Rat (male / female)	Reproductive performance	Estimated value	

Conclusion

Not classified for reprotoxic or developmental toxicity

Aspiration hazard

NOVALUBE

Judgement is based on the relevant ingredients
Not classified for aspiration toxicity

Toxicity other effects

NOVALUBE

No (test)data on the mixture available

Chronic effects from short and long-term exposure

NOVALUBE

No effects known.

11.2. Information on other hazards

No evidence of endocrine disrupting properties

SECTION 12: Ecological information

12.1. Toxicity

NOVALUBE

No (test)data on the mixture available
Classification is based on the relevant ingredients

distillates (petroleum), hydrotreated light naphthenic

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LL50	OECD 203	> 100 mg/l WAF	96 h	Pimephales promelas	Static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EL50	Equivalent to OECD 202	> 10000 mg/l WAF	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Nominal concentration
Toxicity algae and other aquatic plants	NOEL	OECD 201	≥ 100 mg/l WAF	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; Growth rate
Long-term toxicity fish	NOELR		≥ 1000 mg/l	14 day(s)	Oncorhynchus kisutch		Fresh water	QSAR; Nominal concentration
Long-term toxicity aquatic crustacea	NOEL	Equivalent to OECD 211	10 mg/l WAF	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Experimental value; Growth rate

calcium dihydroxide

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	OECD 203	50.6 mg/l	96 h	Oncorhynchus mykiss	Static system	Fresh water	Experimental value; Lethal
Acute toxicity crustacea	EC50	OECD 202	49.1 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Estimated value
Toxicity algae and other aquatic plants	ErC50	OECD 201	184.57 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; Nominal concentration
	NOEC	OECD 201	48 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; Growth rate
Long-term toxicity fish								Data waiving
Long-term toxicity aquatic crustacea	NOEC		32 mg/l	14 day(s)	Crangon sp.	Semi-static system	Salt water	Experimental value; Growth
Toxicity aquatic micro-organisms	EC50	OECD 209	300.4 mg/l	3 h	Activated sludge	Static system	Fresh water	Experimental value; Respiration

aluminium powder

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	EC0		> 100 mg/l	96 h	Salmo trutta			Literature study; Nominal concentration
Toxicity algae and other aquatic plants	EC0		> 100 mg/l	72 h	Selenastrum capricornutum			Literature study; Nominal concentration

copper

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		68 µg/l - 94 µg/l	96 h	Oncorhynchus mykiss	Flow-through system	Fresh water	Weight of evidence
Long-term toxicity fish	NOEC		11.4 µg/l	45 day(s)	Oncorhynchus mykiss	Flow-through system	Fresh water	Experimental value

zinc oxide

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	ASTM E729-88	0.17 mg/l	96 h	Oncorhynchus mykiss	Static system	Fresh water	Read-across; Zinc ion
Acute toxicity crustacea	EC50	OECD 202	1 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Zinc ion
Toxicity algae and other aquatic plants	IC50	OECD 201	0.14 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; Zinc ion
	NOEC	OECD 201	0.024 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; Zinc ion
Long-term toxicity fish	NOEC		0.044 mg/l		Pisces			Literature study; Zinc ion
Long-term toxicity aquatic crustacea	NOEC	OECD 211	0.04 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Read-across; Zinc ion
Toxicity aquatic micro-organisms	EC50	OECD 209	> 1000 mg/l	3 h	Activated sludge	Static system	Fresh water	Experimental value; Zinc ion

zinc powder - zinc dust (stabilised)

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	ASTM E729-88	0.17 mg/l	96 h	Oncorhynchus mykiss	Static system	Fresh water	Experimental value; Zinc ion
Acute toxicity crustacea	EC50	OECD 202	416 µg/l	48 h	Ceriodaphnia dubia	Static system	Fresh water	Experimental value; Zinc ion
Toxicity algae and other aquatic plants	IC50	OECD 201	0.15 mg/l	72 h	Selenastrum capricornutum	Static system	Fresh water	Experimental value; Zinc ion
	NOEC	OECD 201	0.050 mg/l	72 h	Selenastrum capricornutum	Static system	Fresh water	Experimental value; Zinc ion
Long-term toxicity fish	NOEC	US EPA	85 µg/l	7 day(s)	Pimephales promelas	Semi-static system	Fresh water	Experimental value; Zinc ion
Long-term toxicity aquatic crustacea	NOEC	US EPA	0.025 mg/l - 0.050 mg/l	1 week(s)	Ceriodaphnia dubia	Semi-static system	Fresh water	Experimental value; Zinc ion

Conclusion

Very toxic to aquatic life.

Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

distillates (petroleum), hydrotreated light naphthenic

Biodegradation water

Method	Value	Duration	Value determination
OECD 301B	2 % - 4 %; GLP	28 day(s)	Experimental value

Conclusion

Water

Contains non readily biodegradable component(s)

12.3. Bioaccumulative potential

NOVALUBE

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (mixture)			

distillates (petroleum), hydrotreated light naphthenic

Log Kow

Method	Remark	Value	Temperature	Value determination
	No data available in the literature			

calcium dihydroxide

Log Kow

Method	Remark	Value	Temperature	Value determination
	No data available			

aluminium powder

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (inorganic)			

copper

Log Kow

Method	Remark	Value	Temperature	Value determination
	No data available			

zinc oxide

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (inorganic)			

zinc powder - zinc dust (stabilised)

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF		0.002; Zinc ion	40 day(s)	Danio rerio	Experimental value

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (inorganic)			

Conclusion

Does not contain bioaccumulative component(s)

12.4. Mobility in soil

zinc oxide

(log) Koc

Parameter	Method	Value	Value determination
log Koc		2.2	Literature study

Conclusion

Contains component(s) that adsorb(s) into the soil

12.5. Results of PBT and vPvB assessment

Does not contain component(s) that meet(s) the criteria of PBT and/or vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006.

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties

12.7. Other adverse effects

NOVALUBE

Greenhouse gases

None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

distillates (petroleum), hydrotreated light naphthenic

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

Groundwater

Groundwater pollutant

calcium dihydroxide

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Water ecotoxicity pH

pH shift

aluminium powder

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

zinc oxide

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Groundwater

Groundwater pollutant

zinc powder - zinc dust (stabilised)

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).
12 01 12* (wastes from shaping and physical and mechanical surface treatment of metals and plastics: spent waxes and fats). Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2 Disposal methods

Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

13.1.3 Packaging/Container

European Union

Waste material code packaging (Directive 2008/98/EC).
15 01 10* (packaging containing residues of or contaminated by dangerous substances).

SECTION 14: Transport information

Road (ADR)

14.1. UN number or ID number

UN number	3077

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, solid, n.o.s. (copper; zinc oxide)

14.3. Transport hazard class(es)

Hazard identification number	90
Class	9
Classification code	M7

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	375

Special provisions	601
Limited quantities	Combination packagings: not more than 5 kg per inner packaging for solids. A package shall not weigh more than 30 kg (gross mass).

Rail (RID)

14.1. UN number or ID number

UN number	3077

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, solid, n.o.s. (copper; zinc oxide)

14.3. Transport hazard class(es)

Hazard identification number	90
Class	9
Classification code	M7

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	375
Special provisions	601
Limited quantities	Combination packagings: not more than 5 kg per inner packaging for solids. A package shall not weigh more than 30 kg (gross mass).

Inland waterways (ADN)

14.1. UN number or ID number

UN number/ID number	3077

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, solid, n.o.s. (copper; zinc oxide)

14.3. Transport hazard class(es)

Class	9
Classification code	M7

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	375
Special provisions	601
Limited quantities	Combination packagings: not more than 5 kg per inner packaging for solids. A package shall not weigh more than 30 kg (gross mass).

Sea (IMDG/IMSBC)

14.1. UN number or ID number

UN number	3077

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, solid, n.o.s. (copper; zinc oxide)

14.3. Transport hazard class(es)

Class	9

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Marine pollutant	P
Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	274
Special provisions	335
Special provisions	375
Special provisions	966
Special provisions	967
Special provisions	969

Limited quantities	Combination packagings: not more than 5 kg per inner packaging for solids. A package shall not weigh more than 30 kg (gross mass).

14.7. Maritime transport in bulk according to IMO instruments

Annex II of MARPOL 73/78	Not applicable, based on available data

Air (ICAO-TI/IATA-DGR)

14.1. UN number or ID number

UN number/ID number	3077

14.2. UN proper shipping name

Proper shipping name	environmentally hazardous substance, solid, n.o.s. (copper; zinc oxide)

14.3. Transport hazard class(es)

Class	9

14.4. Packing group

Packing group	III
Labels	9

14.5. Environmental hazards

Environmentally hazardous substance mark	yes

14.6. Special precautions for user

Special provisions	A158
Special provisions	A179
Special provisions	A197
Special provisions	A215
Special provisions	A97

Passenger and cargo transport

Limited quantities: maximum net quantity per packaging	30 kg G

SECTION 15: Regulatory information

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

European legislation:

Explosives precursors

Due to the presence of one or more components in this mixture, acquisition, introduction, possession or use of this product by the general public is restricted by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

VOC content Directive 2010/75/EU

VOC content	Remark
0 %	

Directive 2012/18/EU (Seveso III)

Threshold values under normal circumstances

Substance or category	Low tier (tonnes)	Top tier (tonnes)	Group	For this substance or mixture the summation rule has to be applied for:
E1 Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1	100	200	None	Eco-toxicity

REACH Candidate list

Does not contain component(s) included in candidate list of substances of very high concern (SVHC) for authorisation (Article 59 of Regulation (EC) No 1907/2006)

REACH Annex XIV - Authorisation

Does not contain component(s) included in Annex XIV of Regulation (EC) No 1907/2006: list of substances subject to authorisation

REACH Annex XVII - Restriction

Contains component(s) subject to restrictions of Annex XVII of Regulation (EC) No 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
· distillates (petroleum), hydrotreated light naphthenic	Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.	1. Shall not be used in: — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects, 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they: — can be used as fuel in decorative oil lamps for supply to the general public, and, — present an aspiration hazard and are labelled with H304, 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).

		5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: “Keep lamps filled with this liquid out of the reach of children”; and, by 1 December 2010, “Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life- threatening lung damage”; b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: “Just a sip of grill lighter may lead to life threatening lung damage”; c) lamp oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
· aluminium powder	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to that Regulation or not.	1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following: — metallic glitter intended mainly for decoration, — artificial snow and frost, — “whoopee” cushions, — silly string aerosols, — imitation excrement, — horns for parties, — decorative flakes and foams, — artificial cobwebs, — stink bombs. 2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: “For professional users only”. 3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/ 324/EEC. 4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.
· distillates (petroleum), hydrotreated light naphthenic	Substances falling within one or more of the following points: (a) substances classified as any of the following in Part 3 of Annex VI to Regulation (EC) No 1272/2008: — carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, but excluding any such substances classified due to effects only following exposure by inhalation — reproductive toxicant category 1A, 1B or 2 but excluding any such substances classified due to effects only following exposure by inhalation — skin sensitiser category 1, 1A or 1B — skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2 — serious eye damage category 1 or eye irritant category 2 (b) substances listed in Annex II to Regulation (EC) No 1223/2009 of the European Parliament and of the Council (c) substances listed in Annex IV to Regulation (EC) No 1223/2009 for which a condition is specified in at least one of the columns g, h and i of the table in that Annex (d) substances listed in Appendix 13 to this Annex. The ancillary requirements in paragraphs 7 and 8 of column 2 of this entry apply to all mixtures for use for tattooing purposes, whether or not they contain a substance falling within points (a) to (d) of this column of this entry.	Mixtures for tattooing purposes are subject to the restrictions of Regulation (EU) 2020/2081
· copper	Substances falling within one or more of the following points: (a) substances classified as any of the following in Part 3 of Annex VI to Regulation (EC) No 1272/2008: — carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, but excluding any such substances classified due to effects only following exposure by inhalation — reproductive toxicant category 1A, 1B or 2 but excluding any such substances classified due to effects only following exposure by inhalation — skin sensitiser category 1, 1A or 1B — skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2	Mixtures for tattooing purposes are subject to the restrictions of Regulation (EU) 2020/2081

	— serious eye damage category 1 or eye irritant category 2 (b) substances listed in Annex II to Regulation (EC) No 1223/2009 of the European Parliament and of the Council (c) substances listed in Annex IV to Regulation (EC) No 1223/2009 for which a condition is specified in at least one of the columns g, h and i of the table in that Annex (d) substances listed in Appendix 13 to this Annex. The ancillary requirements in paragraphs 7 and 8 of column 2 of this entry apply to all mixtures for use for tattooing purposes, whether or not they contain a substance falling within points (a) to (d) of this column of this entry.	
· zinc powder - zinc dust (stabilised)	Substances falling within one or more of the following points: (a) substances classified as any of the following in Part 3 of Annex VI to Regulation (EC) No 1272/2008: — carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, but excluding any such substances classified due to effects only following exposure by inhalation — reproductive toxicant category 1A, 1B or 2 but excluding any such substances classified due to effects only following exposure by inhalation — skin sensitiser category 1, 1A or 1B — skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2 — serious eye damage category 1 or eye irritant category 2 (b) substances listed in Annex II to Regulation (EC) No 1223/2009 of the European Parliament and of the Council (c) substances listed in Annex IV to Regulation (EC) No 1223/2009 for which a condition is specified in at least one of the columns g, h and i of the table in that Annex (d) substances listed in Appendix 13 to this Annex. The ancillary requirements in paragraphs 7 and 8 of column 2 of this entry apply to all mixtures for use for tattooing purposes, whether or not they contain a substance falling within points (a) to (d) of this column of this entry.	Mixtures for tattooing purposes are subject to the restrictions of Regulation (EU) 2020/2081

National legislation Belgium

NOVALUBE

No data available

National legislation The Netherlands

NOVALUBE

Waterbezwaarlijkheid	A (1); Algemene Beoordelingsmethodiek (ABM)

National legislation France

NOVALUBE

No data available

National legislation Germany

NOVALUBE

WGK	2; Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV) - 18. April 2017

distillates (petroleum), hydrotreated light naphthenic

TA-Luft	5.2.5

calcium dihydroxide

TA-Luft	5.2.1
TRGS900 - Risiko der Fruchtschädigung	Calciumdihydroxid; Y; Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes nicht befürchtet zu werden

aluminium powder

TA-Luft	5.2.1

zinc oxide

TA-Luft	5.2.1

zinc powder - zinc dust (stabilised)

TA-Luft	5.2.1

National legislation Austria

NOVALUBE

No data available

National legislation United Kingdom

NOVALUBE

No data available

Other relevant data

NOVALUBE

No data available

distillates (petroleum), hydrotreated light naphthenic

TLV - Carcinogen	Mineral oil, excluding metal working fluids: Pure, highly and severely refined; A4

aluminium powder

TLV - Carcinogen	Aluminium metal and insoluble compounds; A4

15.2. Chemical safety assessment

No chemical safety assessment is required for a mixture.

SECTION 16: Other information

Full text of any H- and EUH-statements referred to under section 3:

H228 Flammable solid.
H261 In contact with water releases flammable gases.
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.
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.

(*)	INTERNAL CLASSIFICATION BY BIG
ADI	Acceptable daily intake
AOEL	Acceptable operator exposure level
ATE	Acute Toxicity Estimate
BCF	Bioconcentration Factor
BEI	Biological Exposure Indices
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC10	Effect Concentration 10 %
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
GLP	Good Laboratory Practice
LC0	Lethal Concentration 0 %
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
LOAEC/LOAEL	Lowest Observed Adverse Effect Concentration/Lowest Observed Adverse Effect Level
NOAEC/NOAEL	No Observed Adverse Effect Concentration/No Observed Adverse Effect Level
NOEC/NOEL	No Observed Effect Concentration/No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration
STP	Sludge Treatment Process
vPvB	very Persistent & very Bioaccumulative

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