MICROLUBE GB 0

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4.2	08.01.2019	Date of first issue: 29.07.2015	08.01.2019

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

1.1 Product identifier

Product name : MICROLUBE GB 0

Article-No. : 020232

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

Use of the Substance/Mixture : Grease

Recommended restrictions on use : Restricted to professional users.

1.3 Details of the supplier of the safety data sheet

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

E-mail address of person responsible for the SDS : mcm@klueber.com
Material Compliance Management

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

1.4 Emergency telephone number

Emergency telephone number : +49 89 7876 700 (24 hrs)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2 H319: Causes serious eye irritation.

Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements :

H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.

Response:

P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

Hazardous components which must be listed on the label:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl
reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats
Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Mineral oil.
lithium soap
silicate

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration limits M-Factor Notes	Concentration (% w/w)
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	Not Assigned931-384-6 01-2119493620-38-XXXX	Acute Tox.4; H302 Eye Dam.1; H318 Skin Sens.1; H317 Aquatic Chronic2; H411		>= 1 - < 2,5
zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate)	2215-35-2 218-679-9 01-2119953275-34-XXXX	Skin Irrit.2; H315 Eye Dam.1; H318 Aquatic Chronic2; H411	> 10 % Eye Dam.1, H318	>= 1 - < 2,5
(Z)-octadec-9-enylamine	112-90-3 204-015-5 612-283-00-3	Acute Tox.4; H302 Skin Corr.1B; H314 STOT SE3; H335 STOT RE2; H373 Asp. Tox.1; H304 Aquatic Acute1; H400 Aquatic Chronic1; H410	M-Factor: 10/10	>= 0,25 - < 1
reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats	Not Assigned939-460-0 01-2119971727-23-XXXX	Flam. Liq.3; H226 Skin Irrit.2; H315 Eye Dam.1; H318 Skin Sens.1B; H317 Aquatic Chronic3; H412		>= 0,1 - < 0,25
Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts	Not Assigned939-603-7 01-2119978241-36-XXXX	Skin Sens.1B; H317	> 10 - 100 % Skin Sens.1B, H317	>= 0,1 - < 1
Substances with a workplace exposure limit :				

silicon dioxide	7631-86-9 231-545-4 01-2119379499-16-XXXX			>= 1 - < 10

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

If inhaled : 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.
Seek medical advice.

If swallowed : Move the victim to fresh air.
If unconscious, place in recovery position and seek medical advice.
Keep respiratory tract clear.
Do not induce vomiting without medical advice.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Allergic appearance

Risks : May cause an allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : The first aid procedure should be established in consultation

with the doctor responsible for industrial medicine.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting	:	Fire may cause evolution of: Carbon oxides Metal oxides Oxides of phosphorus Sulphur oxides

5.3 Advice for firefighters

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Evacuate personnel to safe areas. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Avoid breathing dust. Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions	:	Do not allow contact with soil, surface or ground water. 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 : Clean up promptly by sweeping or vacuum.
Keep in suitable, closed containers for disposal.

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 : Avoid contact with skin and eyes.
For personal protection see section 8.
Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
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 repack.
These safety instructions also apply to empty packaging which may still contain product residues.
Keep container closed when not in 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 : Store in original container. Keep container closed when not in use. Keep in a dry, cool and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in accordance with the particular national regulations. Keep in properly labelled containers.

Storage class (TRGS 510) : 11, Combustible Solids

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
silicon dioxide	7631-86-9	AGW (Inhalable fraction)	4 mg/m3 (Silica)	DE TRGS 900 (2013-09-19)
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., Colloidal amorphous silica, including pyrogenic silica and in wet processes manufactured silica (precipitated silica, silicagel)., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
residual oils (petroleum), solvent-dewaxed	Workers	Inhalation	Long-term systemic effects	2,7 mg/m3
	Workers	Inhalation	Long-term local effects	5,6 mg/m3
	Workers	Dermal	Long-term systemic effects	1 mg/kg bw/day
Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil -unspecified	Workers	Inhalation	Long-term local effects	5,6 mg/m3
silicon dioxide	Workers	Inhalation		4 mg/m3
Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl	Workers	Inhalation	Long-term systemic effects	8,56 mg/m3
	Workers	Skin contact	Long-term systemic effects	12,5 mg/kg
zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate)	Workers	Inhalation	Long-term systemic effects	8,6 mg/m3

	Workers	Skin contact	Long-term systemic effects	12,2 mg/kg
(Z)-octadec-9-enylamine	Workers	Inhalation	Long-term systemic effects	0,38 mg/m3
	Workers	Skin contact	Long-term systemic effects	0,09 mg/kg
	Workers	Skin contact	Long-term local effects	60 mg/kg
	Consumers	Ingestion	Long-term systemic effects	0,040 mg/kg
reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats	Workers	Inhalation	Long-term systemic effects	2,35 mg/m3
	Workers	Skin contact	Long-term systemic effects	66,7 mg/m3
Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts	Workers	Inhalation	Long-term systemic effects	35,26 mg/m3
	Workers	Inhalation	Long-term local effects	
Remarks:	No hazard identified			
	Workers	Inhalation	Acute systemic effects	
Remarks:	No hazard identified			
	Workers	Inhalation	Acute local effects	
Remarks:	No hazard identified			
	Workers	Dermal	Long-term systemic effects	25 mg/kg
	Workers	Dermal	Long-term local effects	
Remarks:	No hazard identified			
	Workers	Dermal	Acute systemic effects	
Remarks:	No hazard identified			
	Workers	Dermal	Acute local effects	
Remarks:	No hazard identified			

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

Substance name	Environmental Compartment	Value
residual oils (petroleum), solvent-dewaxed	Oral	9,33 mg/kg
Distillates (petroleum), hydrotreated heavy paraffinic; Baseoil - unspecified	Oral	9,33 mg/kg

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14-tert-alkyl	Fresh water	0,0012 mg/l
	Marine water	0,00012 mg/l
	Intermittent use/release	0,085 mg/l
	Sewage treatment plant	24,33 mg/l
	Fresh water sediment	14,4 mg/kg
	Marine sediment	1,44 mg/kg
	Soil	2,94 mg/kg
zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate)	Fresh water	0,004 mg/l
	Marine water	0,0046 mg/l
	Intermittent use/release	0,045 mg/l
	Microbiological Activity in Sewage Treatment Systems	100 mg/l
	Fresh water sediment	0,074 mg/kg
	Marine sediment	0,007 mg/kg
	Soil	0,01 mg/kg
	Oral	10,67 mg/kg
(Z)-octadec-9-enylamine	Fresh water	0,00026 mg/l
	Marine water	0,000026 mg/l
	Intermittent use/release	0,00016 mg/l
	Microbiological Activity in Sewage Treatment Systems	0,55 mg/l
	Fresh water sediment	0,1794 mg/kg
	Marine sediment	0,01794 mg/kg
	Soil	10 mg/kg
	Oral	0,22 mg/kg
reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats	Fresh water	0,026 mg/l
	Marine water	0,0026 mg/l
	Intermittent use/release	0,26 mg/l
	Sewage treatment plant	45,5 mg/l
	Fresh water sediment	1108,6 mg/kg
	Marine sediment	110,86 mg/kg
	Soil	221,48 mg/kg
	Oral	6,7 mg/kg
Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts	Fresh water	0,1 mg/l
	Marine water	0,1 mg/l

		Fresh water sediment	45211 mg/kg
		Marine sediment	45211 mg/kg
		Microbiological Activity in Sewage Treatment Systems	1000 mg/l
		Air	
Remarks:	No data available		
		Soil	36739 mg/kg

8.2 Exposure controls

Engineering measures

none

Personal protective equipment

Eye protection : Tightly fitting safety goggles

Hand protection
- Material : Nitrile rubber
- Protective index : Class 1

Remarks : Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case.

Respiratory protection : Not required; except in case of aerosol formation.

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : paste

Colour : red

Odour : characteristic

Odour Threshold : No data available

pH	:	No data available
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	Not applicable
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Combustible Solids
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	< 0,001 hPa (20 °C)
Relative vapour density	:	No data available
Density	:	0,90 g/cm3 (20 °C)
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	No data available

9.2 Other information

Sublimation point	:	No data available
Self-ignition	:	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 : No conditions to be specially mentioned.

10.5 Incompatible materials

Materials to avoid : No materials to be especially mentioned.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:

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

Acute inhalation toxicity : Remarks: This information is not available.

Acute dermal toxicity : Symptoms: Redness, Local irritation

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Acute oral toxicity : LD50 (Rat): 2.000 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Acute oral toxicity : LD50 (Rat): 2.230 mg/kg

Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male): > 2,3 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
Remarks: An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Acute dermal toxicity : LD50 (Rabbit): > 25.000 mg/kg
Method: OECD Test Guideline 402

(Z)-octadec-9-enylamine:

Acute oral toxicity : LD50 (Rat): 1.689 mg/kg
Method: OECD Test Guideline 401
GLP: yes

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Acute oral toxicity : LD50 (Rat): > 2.000 - < 5.000 mg/kg
Assessment: The component/mixture is minimally toxic after single ingestion.

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

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 1,9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

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

silicon dioxide:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg

Skin corrosion/irritation

Product:

Remarks: This information is not available.

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Result: Mild skin irritation

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Species: Rabbit
Assessment: Irritating to skin.
Method: OECD Test Guideline 404
Result: Irritating to skin.
GLP: yes

(Z)-octadec-9-enylamine:

Species: Rabbit
Assessment: Causes burns.
Method: OECD Test Guideline 404
Result: Causes burns.
GLP: yes

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Species: Rabbit
Result: Severe skin irritation

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

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

silicon dioxide:

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

Serious eye damage/eye irritation

Product:

Remarks: Irritating to eyes.

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

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

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

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

(Z)-octadec-9-enylamine:

Assessment: Corrosive
Result: Corrosive

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Species: Rabbit
Result: Irreversible effects on the eye

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Assessment: No eye irritation
Method: OECD Test Guideline 405
Result: No skin irritation

silicon dioxide:

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:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Assessment: Probability or evidence of skin sensitisation in humans
Result: May cause sensitisation by skin contact.

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

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

(Z)-octadec-9-enylamine:

Assessment: Does not cause skin sensitisation.
Result: Does not cause skin sensitisation.

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Species: Guinea pig
Method: OECD Test Guideline 406
Result: Probability or evidence of low to moderate skin sensitisation rate in humans

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans
Result: Probability or evidence of low to moderate skin sensitisation rate in humans

silicon dioxide:

Assessment: Does not cause skin sensitisation.
Result: Does not cause skin sensitisation.

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: No data available

Genotoxicity in vivo : Remarks: No data available

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Genotoxicity in vitro : Test Type: Ames test
Species: Salmonella typhimurium
Method: OECD Test Guideline 471
Result: negative

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Genotoxicity in vitro : Test Type: reverse mutation assay
Species: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471

Result: negative

Genotoxicity in vivo : Test Type: Cytogenetic assay
Species: Mouse
Cell type: Bone marrow
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Genotoxicity in vitro : Test Type: Ames test
Species: Escherichia coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

: Test Type: Ames test
Species: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

: Test Type: In vitro mammalian cell gene mutation test
Species: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Genotoxicity in vitro : Test Type: Microbial mutagenesis assay (Ames test)
Species: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

silicon dioxide:

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

Carcinogenicity

Product:

Remarks: No data available

Components:

silicon dioxide:

Carcinogenicity - Assess- : No evidence of carcinogenicity in animal studies.

ment

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Reproductive toxicity - Assessment : No toxicity to reproduction

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Effects on foetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Oral
General Toxicity Maternal: NOAEL: 160 mg/kg body weight
Developmental Toxicity: NOAEL: 160 mg/kg body weight
Method: OECD Test Guideline 422
Result: No effects on fertility and early embryonic development were detected.

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Reproductive toxicity - Assessment : No toxicity to reproduction
No toxicity to reproduction

silicon dioxide:

Reproductive toxicity - Assessment : No toxicity to reproduction
No effects on or via lactation

STOT - single exposure

Components:

(Z)-octadec-9-enylamine:

Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

silicon dioxide:

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

STOT - repeated exposure

Components:

(Z)-octadec-9-enylamine:

Exposure routes: Ingestion
Target Organs: Gastrointestinal tract
Assessment: May cause damage to organs through prolonged or repeated exposure.

silicon dioxide:

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:

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Species: Rat
NOAEL: 160 mg/kg
Application Route: Oral
Method: OECD Test Guideline 422

Aspiration toxicity

Product:

This information is not available.

Components:

(Z)-octadec-9-enylamine:

May be fatal if swallowed and enters airways.

silicon dioxide:

No aspiration toxicity classification

Further information

Product:

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: Toxic 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	:	Remarks: No data available
Toxicity to microorganisms	:	Remarks: No data available

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 8,5 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 91,4 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): 6,4 mg/l Exposure time: 96 h
Toxicity to microorganisms	:	EC50 (activated sludge): 2.433 mg/l Exposure time: 3 h Method: OECD Test Guideline 209
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOELR: 0,12 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Ecotoxicology Assessment

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

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 4,5 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 23 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	:	EC50 (Desmodesmus subspicatus (green algae)): 21 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 10.000 mg/l Exposure time: 3 h Test Type: Respiration inhibition Method: OECD Test Guideline 209 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,4 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 GLP: yes

(Z)-octadec-9-enylamine:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0,11 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,011 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (algae): > 0,1 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to microorganisms	:	EC50 (activated sludge): 15,5 mg/l Exposure time: 3 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,013 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
M-Factor (Chronic aquatic toxicity)	:	10

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 26 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 75 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 25 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (activated sludge): 4.550 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	(Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae	:	NOELR (Desmodesmus subspicatus (green algae)): 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 EL50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (activated sludge): > 10.000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

silicon dioxide:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): > 10.000 mg/l Exposure time: 96 h Method: OECD Test Guideline 203

12.2 Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available
Physico-chemical removabili-	:	Remarks: No data available

ty

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Result: Not rapidly biodegradable
Biodegradation: 5,4 - 9,4 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
GLP: yes

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 1,5 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

(Z)-octadec-9-enylamine:

Biodegradability : Test Type: aerobic
Result: Readily biodegradable.
Biodegradation: > 60 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 17,4 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 8 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

Product:

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

Components:

Reaction products of 4-methyl-2-pentanol and diphosphorus pentasulfide, propoxylated, esterified with diphosphorus pentaoxide, and salted by amines, C12-14- tert-alkyl:

Bioaccumulation	:	Species: Oncorhynchus mykiss (rainbow trout) Exposure time: 97 d Bioconcentration factor (BCF): 436 Method: OPPTS 850.1730

zinc O,O,O',O'-tetrakis(1,3-dimethylbutyl) bis(phosphorodithioate):

Partition coefficient: n-octanol/water	:	log Pow: 2,21 (20 °C) pH: 5 - 6 Method: OECD Test Guideline 107 GLP: yes

(Z)-octadec-9-enylamine:

Bioaccumulation	:	Bioconcentration factor (BCF): > 500
Partition coefficient: n-octanol/water	:	log Pow: > 4

reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formadehyde and phenol, heptyl derivats:

Partition coefficient: n-octanol/water	:	log Pow: > 9,4 Method: OECD Test Guideline 117

Benzenesulfonic acid, di-C10-14-alkyl derivs., calcium salts:

Bioaccumulation	:	Bioconcentration factor (BCF): 70,8
Partition coefficient: n-octanol/water	:	log Pow: 26,22 (20 °C)

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:

(Z)-octadec-9-enylamine:

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

silicon dioxide:

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

12.6 Other adverse effects

Product:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

The product should not be allowed to enter drains, water courses or the soil.
Do not dispose of with domestic refuse.
Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging : Packaging that is not properly emptied must be disposed of as the unused product.
Dispose of waste product or used containers according to local regulations.

The following Waste Codes are only suggestions:

SECTION 14: Transport information

14.1 UN number

ADR : UN 3077

IMDG : UN 3077

IATA : UN 3077

14.2 UN proper shipping name

ADR	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. ((Z)-octadec-9-enylamine)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. ((Z)-octadec-9-enylamine)
IATA	:	Environmentally hazardous substance, solid, n.o.s. ((Z)-octadec-9-enylamine)

14.3 Transport hazard class(es)

ADR	:	9
IMDG	:	9
IATA	:	9

14.4 Packing group

ADR

Packing group	:	III
Classification Code	:	M7
Hazard Identification Number	:	90
Labels	:	9

IMDG

Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft)	:	956
Packing instruction (LQ)	:	Y956
Packing group	:	III
Labels	:	Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft)	:	956
Packing instruction (LQ)	:	Y956
Packing group	:	III
Labels	:	Miscellaneous

14.5 Environmental hazards

ADR

Environmentally hazardous	:	yes

IMDG

Marine pollutant	:	yes

IATA (Passenger)

Environmentally hazardous	:	yes

IATA (Cargo)

Environmentally hazardous	:	yes

14.6 Special precautions for user

No special precautions required.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	reaction product of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and phenol, heptyl derivats
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EC) No 850/2004 on persistent organic pollutants	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	:	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.

		Quantity 1	Quantity 2
E2	ENVIRONMENTAL HAZARDS	200 t	500 t
34	Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards	2.500 t	25.000 t

flammability and environmental hazards as the products referred to in points (a) to (d)

Water contaminating class (Germany)	:	WGK 3 highly water endangering Classification according to AwSV, Annex 1 (5.2)
TA Luft List (Germany)	:	Total dust: others: 6,08 % Inorganic substances in powdered form: Not applicable Inorganic substances in vapour or gaseous form: Not applicable Organic Substances: portion Class 1: 0,62 % others: 93,29 % Carcinogenic substances: Not applicable Mutagenic: Not applicable Toxic to reproduction: 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: 0,12 % Remarks: VOC content excluding water

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

H226	:	Flammable liquid and vapour.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.

H335	:	May cause respiratory irritation.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; 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; 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:**
Eye Irrit. 2	H319	Calculation method

Skin Sens. 1	H317	Calculation method
Aquatic Chronic 2	H411	Calculation method