OKS 450

Version	Revision Date:	Date of last issue: 28.04.2026	Print Date:
4.1	05.06.2026	Date of first issue: 08.07.2016	05.06.2026

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

1.1 Product identifier

Product name : OKS 450

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

Use of the Substance/Mixture : Lubricating oil

Recommended restrictions on use : Restricted to professional users.

1.3 Details of the supplier of the safety data sheet

Company : OKS Spezialschmierstoffe GmbH
Ganghoferstr. 47
82216 Maisach
Germany
Tel.: +49 8142 3051-500
info@oks-germany.com

E-mail address of person responsible for the SDS : mcm@oks-germany.com

National contact : Klüber Lubrication Deutschland GmbH & Co. KG
Geisenhausenerstraße 7
81379 München
Germany
Tel.: +49 (0) 89 7876 0
customer.service.de@klueber.com

1.4 Emergency telephone number

Emergency telephone number : +49 8142 3051 517

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.

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.

Precautionary statements :

Prevention:

P264	Wash skin thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
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.

Hazardous components which must be listed on the label:

Sulfonic acids, petroleum, calcium salts

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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

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

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Synthetic hydrocarbon oil

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	specific concentration limit M-Factor Notes Acute toxicity estimate	Concentration (% w/w)
zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	4259-15-8 224-235-5 01-2119493635-27-XXXX	Eye Dam. 1; H318 Aquatic Chronic 2; H411	> 50 % Eye Dam.1, H318	>= 1 - < 2,5
Sulfonic acids, petroleum, calcium salts	61789-86-4 263-093-9 01-2119488992-18-XXXX	Skin Sens. 1B; H317	>= 10 % Skin Sens.1B,	>= 1 - < 10
Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate	947-946-9 01-2120772600-59-XXXX	Skin Irrit. 2; H315 Skin Sens. 1B; H317 Aquatic Chronic 4; H413		>= 1 - < 2,5

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.
Rinse mouth with water.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No symptoms known or expected.

Risks : May cause an allergic skin reaction.
Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : 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

Hazardous combustion products : Carbon oxides
Nitrogen oxides (NOx)
Sulphur oxides

Oxides of phosphorus
Metal oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Exposure to decomposition products may be a hazard to health.

Further information : Standard procedure for chemical fires.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Evacuate personnel to safe areas.
Use personal protective equipment.
Ensure adequate ventilation.
Do not breathe vapours or spray mist.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Try to prevent the material from entering drains or water courses.
Prevent further leakage or spillage if safe to do so.
Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Do not breathe vapours or spray mist.
Avoid contact with skin and eyes.
For personal protection see section 8.
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.
Do not re-use empty containers.
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) : 10, Combustible liquids

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
Sulfonic acids, petroleum, calcium salts	61789-86-4	MAK (measured as the alveolate fraction)	5 mg/m3	DE DFG MAK (2023-07-01)
	Peak-limit: excursion factor (category): 4; II			
	Further information: Either there are no data for an assessment of damage to the embryo or foetus, including developmental neurotoxicity, or the currently available data are not sufficient for classification in one of the groups A - C			
		AGW (Alveolate fraction)	5 mg/m3	DE TRGS 900 (2015-11-06)
	Peak-limit: excursion factor (category): 4;(II)			

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

Substance name	End Use	Exposure routes	Potential health effects	Value

Benzene, mono-C10-13-alkyl derivs., distn. residues	Workers	Inhalation	Long-term systemic effects	2,2 mg/m3
	Workers	Skin contact	Long-term systemic effects	3,15 mg/kg bw/day
zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	Workers	Inhalation	Long-term systemic effects	6,6 mg/m3
	Workers	Skin contact	Long-term systemic effects	9,6 mg/m3
Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate	Workers	Inhalation	Long-term systemic effects	4,93 mg/m3
	Workers	Dermal	Long-term systemic effects	1,4 mg/kg bw/day
Sulfonic acids, petroleum, calcium salts	Workers	Inhalation	Long-term systemic effects	11,75 mg/m3
	Workers	Skin contact	Long-term systemic effects	3,33 mg/m3
	Workers	Skin contact	Long-term local effects	1,03 mg/cm2

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

Substance name	Environmental Compartment	Value
Benzene, mono-C10-13-alkyl derivs., distn. residues	Fresh water	0,001 mg/l
	Intermittent use/release	0,001 mg/l
	Marine water	0 mg/l
	Microbiological Activity in Sewage Treatment Systems	2 mg/l
	Fresh water sediment	16,5 mg/kg
	Marine sediment	1,65 mg/kg
	Soil	3,7 mg/kg
zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate)	Fresh water	0,004 mg/l
	Marine water	0,0046 mg/l
	Sewage treatment plant	3,8 mg/l
	Fresh water sediment	0,322 mg/l
	Marine sediment	0,032 mg/l
	Soil	0,062 mg/l
Sulfonic acids, petroleum, calcium salts	Fresh water	1 mg/l
	Marine water	1 mg/l
	Intermittent use/release	10 mg/l
	Microbiological Activity in Sewage Treatment Systems	1000 mg/l
	Fresh water sediment	226000000 mg/kg

	Marine sediment	226000000 mg/kg
	Soil	271000000 mg/kg

8.2 Exposure controls

Engineering measures

none

Personal protective equipment

Eye/face protection : Safety glasses with side-shields

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

Remarks : Wear protective gloves. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case.
The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

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

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

Filter type : Filter type A-P

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

Environmental exposure controls

Air : No special environmental precautions required.
Soil : The product should not be allowed to enter drains, water courses or the soil.
Water : The product should not be allowed to enter drains, water courses or the soil.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour	:	green
Odour	:	characteristic
Odour Threshold	:	No data available
Melting point/ range	:	No data available
Boiling point/boiling range	:	235 °C (1.013 hPa)
Flammability	:	Flammability (solid, gas): Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	210 °C Method: ISO 2592
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
pH	:	Not applicable substance/mixture is non-polar/aprotic
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	295 mm2/s (40 °C)
Solubility(ies)		
Water solubility	:	insoluble

Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	22,0 hPa (20 °C)
Relative density	:	0,891 (20 °C) Reference substance: Water The value is calculated
Density	:	0,89 g/cm3 (20 °C)
Bulk density	:	No data available
Relative vapour density	:	No data available

9.2 Other information

Explosives	:	Not explosive
Oxidizing properties	:	No data available
Self-ignition	:	not auto-flammable
Metal corrosion rate	:	Not corrosive to metals
Evaporation rate	:	No data available
Sublimation point	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No hazards to be specially mentioned.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

Conditions to avoid : 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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Based on available data, the classification criteria are not met.

Product:

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

Acute dermal toxicity : Symptoms: Redness, Local irritation

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Acute oral toxicity : LD50 (Rat, male): 3.100 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute dermal toxicity : LD50 (Rabbit, male): > 5.000 mg/kg
Method: OECD Test Guideline 402
GLP: no

Sulfonic acids, petroleum, calcium salts:

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

GLP: yes

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 (Rabbit): > 5.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Acute dermal toxicity : Symptoms: Redness, Local irritation

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Remarks : This information is not available.

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

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

Sulfonic acids, petroleum, calcium salts:

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

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Species : reconstructed human epidermis (RhE)
Exposure time : 15 min
Assessment : Irritating to skin.
Method : OECD Test Guideline 439
Result : Irritating to skin.
GLP : yes

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Remarks : This information is not available.

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

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

Sulfonic acids, petroleum, calcium salts:

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

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Species	:	Bovine cornea
Exposure time	:	10 min
Assessment	:	No eye irritation
Method	:	OECD Test Guideline 437
Result	:	No eye irritation
GLP	:	yes

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

Product:

Remarks : This information is not available.

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Test Type	:	Maximisation Test
Species	:	Guinea pig
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 406
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

Sulfonic acids, petroleum, calcium salts:

Test Type	:	Buehler Test
Species	:	Guinea pig
Assessment	:	The product is a skin sensitiser, sub-category 1B.
Result	:	The product is a skin sensitiser, sub-category 1B.

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Test Type	:	Local lymph node assay (LLNA)
Species	:	Mouse
Assessment	:	The product is a skin sensitiser, sub-category 1B.
Method	:	OECD Test Guideline 429
Result	:	The product is a skin sensitiser, sub-category 1B.
GLP	:	yes

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Product:

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

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Genotoxicity in vitro	:	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative GLP: yes
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse (male and female) Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative GLP: yes

Sulfonic acids, petroleum, calcium salts:

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse

Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

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

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: in vitro micronucleus test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 490
Result: negative
GLP: yes

Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Based on available data, the classification criteria are not met.

Product:

Remarks : No data available

Components:

Sulfonic acids, petroleum, calcium salts:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Reproductive toxicity

Based on available data, the classification criteria are not met.

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Reproductive toxicity - Assessment : - Fertility -

Weight of evidence does not support classification for reproductive toxicity

Sulfonic acids, petroleum, calcium salts:

Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Oral
General Toxicity - Parent: NOAEL: > 500
General Toxicity F1: NOAEL: > 500
Method: OECD Test Guideline 415

Reproductive toxicity - Assessment : - Fertility -

No toxicity to reproduction
- Teratogenicity -

No toxicity to reproduction

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Reproductive toxicity - Assessment : - Fertility -

Animal testing did not show any effects on fertility.

STOT - single exposure

Based on available data, the classification criteria are not met.

Product:

Remarks : No data available

Components:

Sulfonic acids, petroleum, calcium salts:

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

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Product:

Remarks : No data available

Components:

Sulfonic acids, petroleum, calcium salts:

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 bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Species	:	Rat, male and female
NOAEL	:	125 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	28 d
Number of exposures	:	daily
Method	:	OECD Test Guideline 407
GLP	:	yes

Sulfonic acids, petroleum, calcium salts:

Species	:	Rat
NOAEL	:	500 mg/kg
Application Route	:	Oral
Method	:	OECD Test Guideline 407

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Species	:	Rat, male and female
NOAEL	:	100 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	28 d
Number of exposures	:	daily
Method	:	OECD Test Guideline 422
GLP	:	yes
Remarks	:	Not classified due to data which are conclusive although insufficient for classification.

Aspiration toxicity

Based on available data, the classification criteria are not met.

Product:

This information is not available.

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):
No aspiration toxicity classification

11.2 Information on other hazards

Endocrine disrupting properties
Based on available data, the classification criteria are not met.

Product:

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

Further information

Product:

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

Components:

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Remarks	:	Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available
Toxicity to microorganisms	:	Remarks: No data available

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4,4 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: no
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 75 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: no
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 240 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Analytical monitoring: no
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 (Pseudomonas putida): 380 mg/l
Exposure time: 16 h
Test Type: static test
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 0,8 mg/l
End point: reproduction rate
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Sulfonic acids, petroleum, calcium salts:

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): > 10.000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1.000 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 Remarks: No toxicity at the limit of solubility
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 1.500 mg/l Exposure time: 72 h Test Type: Growth inhibition Remarks: No toxicity at the limit of solubility
Toxicity to microorganisms	:	EC50 (activated sludge): > 10.000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

Ecotoxicology Assessment

Chronic aquatic toxicity	:	This product has no known ecotoxicological effects., No toxicity at the limit of solubility

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes Remarks: May cause long-term adverse effects in the aquatic environment.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 1.000 mg/l Exposure time: 3 h Test Type: Respiration inhibition

Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Physico-chemical removability : Remarks: No data available

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Biodegradability : Test Type: aerobic
Result: Not rapidly biodegradable
Biodegradation: < 5 %
Exposure time: 27 d
Method: OECD Test Guideline 301D
GLP: no

Sulfonic acids, petroleum, calcium salts:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Result: Not rapidly biodegradable
Biodegradation: 8 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Biodegradability : Result: Not rapidly biodegradable
Biodegradation: 11 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Components:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

Partition coefficient: n-octanol/water : log Pow: 3,59 (22 °C)
pH: 5

Method: OECD Test Guideline 107
GLP: yes

Sulfonic acids, petroleum, calcium salts:

Bioaccumulation	:	Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is possible.
Partition coefficient: n-octanol/water	:	log Pow: 10,88 (20 °C) Method: OECD Test Guideline 117 GLP: yes

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Partition coefficient: n-octanol/water	:	log Pow: > 4

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:

zinc bis[O,O-bis(2-ethylhexyl)] bis(dithiophosphate):

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

12.6 Endocrine disrupting properties

Product:

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

12.7 Other adverse effects

Product:

Additional ecological information : No information on ecology is available.

Components:

Molybdenum trioxide, reaction products with bis[O,O-bis(2-ethylhexyl)] hydrogen dithiophosphate:

Additional ecological information : May cause long lasting harmful effects to aquatic life.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : 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.

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

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

The following Waste Codes are only suggestions:

Waste Code : unused product
13 02 06*, synthetic engine, gear and lubricating oils

uncleaned packagings
15 01 10*, packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number or ID number

ADN : Not regulated as a dangerous good

ADR : Not regulated as a dangerous good

RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.2 UN proper shipping name

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.4 Packing group

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA (Cargo)	:	Not regulated as a dangerous good
IATA (Passenger)	:	Not regulated as a dangerous good

14.5 Environmental hazards

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Remarks	:	Not applicable for product as supplied.

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SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3 Number on list 75 If you intend to use this product as tattoo ink, please contact your vendor.
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). (EU SVHC)	:	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
Regulation (EU) No 2024/590 on substances that deplete the ozone layer (EC 2024/590)	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast) (EU POP)	:	Not applicable
Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals (EU PIC)	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV) (EU. REACH-Annex XIV)	:	Not applicable
Regulation (EU) 2019/1148 on the marketing and use of explosives precursors		Not applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.		Not applicable

Water hazard class (Germany)	:	WGK 1 slightly hazardous to water Classification according to AwSV, Annex 1 (5.2)
TA Luft List (Germany)	:	5.2.1: Total dust: others: 0,89 % 5.2.5: Organic Substances: Class 1: 2,49 %
Volatile organic compounds	:	Directive 2010/75/EU of 24 November 2010 on industrial and livestock rearing emissions (integrated pollution prevention and control) Not applicable

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

H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H411	:	Toxic to aquatic life with long lasting effects.
H413	:	May cause long lasting harmful effects to aquatic life.

Full text of other abbreviations

Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
DE DFG MAK	:	Germany. MAK BAT Annex IIa
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
DE DFG MAK / MAK	:	MAK value
DE TRGS 900 / AGW	:	Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonised 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 Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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 - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:		**Classification procedure:**
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method

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

been compiled to the best of our knowledge and are based on the information available to us on the day of publication. The information provided is intended to describe the product in relation to the required safety measures; it is neither an assurance of characteristics nor a guarantee of the product's suitability for particular applications and does not justify any contractual legal relationship. The existence of a safety data sheet for a particular jurisdiction does not necessarily mean that import or use within that jurisdiction is legally permitted. If you have any questions, please contact your responsible sales contact or authorized trading partner.