

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product name : OKS 241

Manufacturer or supplier's details

Company name of supplier : OKS Spezialschmierstoffe GmbH
Ganghoferstr. 47
D-82216 Maisach-Gernlinden
Tel.: +49 8142 3051 500
Fax.: +49 8142 3051 599
info@oks-germany.com

E-mail address of person responsible for the SDS : mcm@oks-germany.com
Emergency telephone number : +7 495 628 1687
+49 8142 3051 517

Recommended use of the chemical and restrictions on use

Recommended use : Lubricant spray
Restrictions on use : Restricted to professional users.

2. HAZARDS IDENTIFICATION

GHS Classification (According to GOST 32423, GOST 32424 and GOST 32425)

Aerosols : Category 1
Skin irritation : Category 2
Specific target organ toxicity - single exposure : Category 3 (Central nervous system)
Aspiration hazard : Category 1
Short-term (acute) aquatic hazard : Category 1
Long-term (chronic) aquatic hazard : Category 1

GHS-Labeling (According to GOST 31340)

Hazard pictograms :    

Signal word : Danger



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Hazard statements : H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P273 Avoid release to the environment.

Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.

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

Other hazards which do not result in classification
None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture
Chemical nature : Active substance with propellant
Solvent mixture

Components

Chemical name	Concentration (% w/w)	Occupational Exposure Limits		CAS-No.	EC-No.
		MAC value mg/m3 / TSEL value	Hazard Class		
dimethyl ether	>= 30 - < 50	MPC-TWA: 200 mg/m3 Data Source: RU OEL	4	115-10-6	204-065-8
		MPC-STEL: 600 mg/m3 Data Source: RU OEL	4		

OKS 241

Version 3.0 Revision Date: 04.12.2023 Date of last issue: 14.12.2022 Print Date: 04.12.2023
Date of first issue: 07.04.2014

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane	>= 25 - < 30	No data available			921-024-6
copper	>= 2,5 - < 10	MPC-TWA: 0,5 mg/m3 Data Source: RU OEL	2	7440-50-8	231-159-6
		MPC-STEL: 1 mg/m3 Data Source: RU OEL	2		
n-butyl acetate	>= 2,5 - < 10	MPC-TWA: 50 mg/m3 Data Source: RU OEL	4	123-86-4	204-658-1
		MPC-STEL: 200 mg/m3 Data Source: RU OEL	4		
tin	>= 1 - < 10	MPC-STEL: 0,05 mg/m3 Data Source: RU OEL	1	7440-31-5	231-141-8
molybdenum disulphide	>= 1 - < 10	MPC-TWA: 1 mg/m3 Data Source: RU OEL	3	1317-33-5	215-263-9
		MPC-STEL: 6 mg/m3 Data Source: RU OEL	3		
		MPC-TWA: 1 mg/m3 Data Source: RU OEL	3		
		MPC-STEL: 6 mg/m3 Data Source: RU OEL	3		



OKS 241

Version 3.0	Revision Date: 04.12.2023	Date of last issue: 14.12.2022 Date of first issue: 07.04.2014	Print Date: 04.12.2023
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4. FIRST AID MEASURES

- If inhaled : Call a physician or poison control centre immediately.
Remove person to fresh air. If signs/symptoms continue, get medical attention.
Keep patient warm and at rest.
If unconscious, place in recovery position and seek medical advice.
Keep respiratory tract clear.
If breathing is irregular or stopped, administer artificial respiration.
- In case of skin contact : Take off all contaminated clothing immediately.
Get medical attention immediately if irritation develops and persists.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
Wash off immediately with plenty of water.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes.
If eye irritation persists, consult a specialist.
- If swallowed : Move the victim to fresh air.
If accidentally swallowed obtain immediate medical attention.
Keep respiratory tract clear.
Do NOT induce vomiting.
Rinse mouth with water.
Aspiration hazard if swallowed - can enter lungs and cause damage.
- Most important symptoms and effects, both acute and delayed : Aspiration may cause pulmonary oedema and pneumonitis.
Central nervous system depression
Risk of product entering the lungs on vomiting after ingestion.
Health injuries may be delayed.
Causes skin irritation.
Inhalation may provoke the following symptoms:
Unconsciousness
Dizziness
Drowsiness
Headache
Nausea
Tiredness
Skin contact may provoke the following symptoms:
Erythema
- Notes to physician : Treat symptomatically.

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

5. FIREFIGHTING MEASURES

Flammable properties

- Flash point : -20 °C
Method: Abel-Pensky
- Ignition temperature : No data available
- Upper explosion limit / Upper flammability limit : 26,2 %(V)
- Lower explosion limit / Lower flammability limit : 0,6 %(V)
- Flammability (solid, gas) : Extremely flammable aerosol.
- Suitable extinguishing media : ABC powder
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Fire Hazard
Do not let product enter drains.
Contains gas under pressure; may explode if heated.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NOx)
Sulphur oxides
Oxides of phosphorus
Metal oxides
- Further information : Standard procedure for chemical fires.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Cool containers/tanks with water spray.
- 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.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and : Evacuate personnel to safe areas.
Ensure adequate ventilation.



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

- emergency procedures Remove all sources of ignition.
Do not breathe vapours or spray mist.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Refer to protective measures listed in sections 7 and 8.
Only qualified personnel equipped with suitable protective equipment may intervene.
- Environmental precautions : Do not allow contact with soil, surface or ground water.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for
containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.
Non-sparking tools should be used.

7. HANDLING AND STORAGE

- Advice on safe handling : Do not use in areas without adequate ventilation.
Do not breathe vapours or spray mist.
In case of insufficient ventilation, wear suitable respiratory equipment.
Avoid contact with skin and eyes.
For personal protection see section 8.
Keep away from fire, sparks and heated surfaces.
Smoking, eating and drinking should be prohibited in the application area.
Wash hands and face before breaks and immediately after handling the product.
Do not get in eyes or mouth or on skin.
Do not get on skin or clothing.
Do not ingest.
Do not use sparking tools.
These safety instructions also apply to empty packaging which may still contain product residues.
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.
- Conditions for safe storage : BEWARE: Aerosol is pressurized. Keep away from direct sun exposure and temperatures over 50 °C. Do not open by force or throw into fire even after use. Do not spray on flames or red-hot objects.
Store in accordance with the particular national regulations.

OKS 241

Version 3.0 Revision Date: 04.12.2023 Date of last issue: 14.12.2022 Date of first issue: 07.04.2014 Print Date: 04.12.2023

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Data Source
dimethyl ether	115-10-6	TWA	1.000 ppm 1.920 mg/m ³	2000/39/EC (2000-06-16)
		MPC-TWA (vapour and/or gas)	200 mg/m ³	RU OEL (2021-02-03)
	Further information: Class 4 - Low hazard			
		MPC-STEL (vapour and/or gas)	600 mg/m ³	RU OEL (2021-02-03)
	Further information: Class 4 - Low hazard			
copper	7440-50-8	MPC-TWA (aerosol)	0,5 mg/m ³	RU OEL (2021-02-03)
	Further information: Class 2 - Highly dangerous			
		MPC-STEL (aerosol)	1 mg/m ³	RU OEL (2021-02-03)
	Further information: Class 2 - Highly dangerous			
n-butyl acetate	123-86-4	STEL	150 ppm 723 mg/m ³	2019/1831/EU (2019-10-31)
		TWA	50 ppm 241 mg/m ³	2019/1831/EU (2019-10-31)
		MPC-TWA (vapour and/or gas)	50 mg/m ³	RU OEL (2021-02-03)
	Further information: Class 4 - Low hazard			
		MPC-STEL (vapour and/or gas)	200 mg/m ³	RU OEL (2021-02-03)
	Further information: Class 4 - Low hazard			
tin	7440-31-5	TWA	2 mg/m ³ (Tin)	91/322/EEC (1991-07-05)
		MPC-STEL (aerosol)	0,05 mg/m ³ (Lead)	RU OEL (2021-02-03)
	Further information: Class 1 - Extremely dangerous			
molybdenum disulphide	1317-33-5	MPC-TWA (aerosol)	1 mg/m ³	RU OEL (2011-07-12)
	Further information: Class 3 - Dangerous			
		MPC-STEL (aerosol)	6 mg/m ³	RU OEL (2011-07-12)
	Further information: Class 3 - Dangerous			
		MPC-TWA	1 mg/m ³	RU OEL



OKS 241

Version 3.0 Revision Date: 04.12.2023 Date of last issue: 14.12.2022 Print Date: 04.12.2023
 Date of first issue: 07.04.2014

	(aerosol)	(Molybdenum)	(2021-02-03)
Further information: Class 3 - Moderately dangerous			
	MPC-STEL (aerosol)	6 mg/m3 (Molybdenum)	RU OEL (2021-02-03)
Further information: Class 3 - Moderately dangerous			

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

Personal protective equipment

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

Filter type : Filter type A-P

Hand protection

Material : butyl-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.

Eye protection : Safety glasses with side-shields

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.

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

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : aerosol

Colour : red brown

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Odour : solvent-like

Odour Threshold : No data available

pH : Not applicable
substance/mixture is non-soluble (in water)

Melting point/range : No data available

Boiling point/boiling range : < -20 °C
(1.013 hPa)

Flash point : -20 °C
Method: Abel-Pensky

Evaporation rate : No data available

Flammability (solid, gas) : Extremely flammable aerosol.

Self-ignition : No data available

Upper explosion limit / Upper flammability limit : 26,2 %(V)

Lower explosion limit / Lower flammability limit : 0,6 %(V)

Vapour pressure : 4.600 hPa (20 °C)

Relative vapour density : No data available

Relative density : 0,818 (20 °C)
Reference substance: Water
The value is calculated

Density : 0,82 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

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity

 Viscosity, dynamic : No data available

 Viscosity, kinematic : < 20,5 mm²/s (40 °C)

Explosive properties : Not explosive

Oxidizing properties : No data available

Sublimation point : No data available

Metal corrosion rate : Not corrosive to metals

10. STABILITY AND REACTIVITY

Reactivity : No hazards to be specially mentioned.

Chemical stability : Stable under normal conditions.

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

Conditions to avoid : Heat, flames and sparks.
Strong sunlight for prolonged periods.
Risk of receptacle bursting.

Incompatible materials : Oxidizing agents

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

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

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

Symptoms: Central nervous system depression

Acute toxicity estimate: > 5.000 mg/kg

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Method: Calculation method

Acute inhalation toxicity : Symptoms: Inhalation may provoke the following symptoms:, Respiratory disorder, Dizziness, Drowsiness, Vomiting, Fatigue, Vertigo, Central nervous system depression

Remarks: Respiration of solvent vapour may cause dizziness. Harmful by inhalation.

Acute dermal toxicity : Symptoms: Redness, Local irritation

Components:

dimethyl ether:

Acute inhalation toxicity : LC50 (Rat): 309 mg/l
Exposure time: 4 h
Test atmosphere: gas

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

Acute oral toxicity : LD50 (Rat): > 5.840 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 25,2 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,8 g/kg
Assessment: The substance or mixture has no acute dermal toxicity

copper:

Acute oral toxicity : LD50 Oral (Rat): > 300 - 2.000 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

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

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

n-butyl acetate:

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

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

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

tin:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 423
GLP: yes
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity

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

molybdenum disulphide:

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

Acute dermal toxicity : LD50 (Rat): > 16.000 mg/kg

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Skin corrosion/irritation

Product:

Remarks : Irritating to skin.

Components:

dimethyl ether:

Assessment : No skin irritation
Result : No skin irritation

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

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

n-butyl acetate:

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

tin:

Assessment : No skin irritation
Result : No skin irritation

molybdenum disulphide:

Assessment : No skin irritation
Result : No skin irritation

Serious eye damage/eye irritation

Product:

Remarks : Irritating to eyes.

Components:

dimethyl ether:

Result : No eye irritation

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Assessment : No eye irritation

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

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

copper:

Result : Eye irritation

n-butyl acetate:

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

tin:

Result : No eye irritation
Assessment : No eye irritation

molybdenum disulphide:

Result : No eye irritation
Assessment : No eye irritation

Respiratory or skin sensitisation

Product:

Remarks : This information is not available.

Components:

dimethyl ether:

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

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

Test Type : Maximisation Test



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Exposure routes : Dermal
Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Method : OECD Test Guideline 406
Result : Did not cause sensitisation on laboratory animals.

n-butyl acetate:

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

molybdenum disulphide:

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:

dimethyl ether:

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

Genotoxicity in vivo : Species: Drosophila melanogaster (vinegar fly)
Application Route: inhalation (gas)
Method: OECD Test Guideline 477
Result: negative

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test system: Rodent cell line
Method: OECD Test Guideline 473

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Result: negative

n-butyl acetate:

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

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster cells
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

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

molybdenum disulphide:

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

Carcinogenicity

Product:

Remarks : No data available

Components:

dimethyl ether:

Species : Rat
Application Route : inhalation (gas)
Exposure time : 2 Years
: 47 mg/l
Method : OECD Test Guideline 453
Result : negative

n-butyl acetate:

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

molybdenum disulphide:

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

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

dimethyl ether:

Reproductive toxicity - Assessment : - Fertility -
Animal testing did not show any effects on fertility.

n-butyl acetate:

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

Reproductive toxicity - Assessment : - Fertility -
No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.
- Teratogenicity -
No toxicity to reproduction

STOT - single exposure

Product:

Remarks : No data available

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Components:

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

Assessment : May cause drowsiness or dizziness.

n-butyl acetate:

Exposure routes : Inhalation
Target Organs : Central nervous system
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

molybdenum disulphide:

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

STOT - repeated exposure

Product:

Remarks : No data available

Components:

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

Exposure routes : inhalation (vapour)
Assessment : No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less.

n-butyl acetate:

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

molybdenum disulphide:

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.

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Components:

n-butyl acetate:

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

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

May be fatal if swallowed and enters airways.

Components:

dimethyl ether:

No aspiration toxicity classification

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

May be fatal if swallowed and enters airways.

n-butyl acetate:

No aspiration toxicity classification

Further information

Product:

Remarks : Risks of irreversible effects after a single exposure.
Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

Components:

molybdenum disulphide:

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

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : Remarks: May cause long-term adverse effects in the aquatic environment.

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

Toxicity to algae/aquatic plants : Remarks: No data available

Toxicity to microorganisms : Remarks: No data available

Components:

dimethyl ether:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 4.100 mg/l
Exposure time: 96 h
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 4.400 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to algae/aquatic plants : EC50 (green algae): 154,9 mg/l
Exposure time: 96 h

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 22 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 3 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

GLP: yes

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 26 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

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

copper:

M-Factor (Acute aquatic toxicity) : 10

M-Factor (Chronic aquatic toxicity) : 10

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

n-butyl acetate:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 18 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)): 44 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 397 mg/l
Exposure time: 72 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : NOEC (Daphnia magna (Water flea)): 23 mg/l
Exposure time: 21 d

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Components:

dimethyl ether:

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

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane:

Biodegradability : Result: Readily biodegradable.

copper:

Biodegradability : Result: Not rapidly biodegradable

n-butyl acetate:

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

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:

dimethyl ether:

Partition coefficient: n-octanol/water : log Pow: 0,07 (25 °C)

n-butyl acetate:

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



OKS 241

Version 3.0	Revision Date: 04.12.2023	Date of last issue: 14.12.2022 Date of first issue: 07.04.2014	Print Date: 04.12.2023
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Mobility in soil

Product:

Mobility : Remarks: No data available

Distribution among environmental compartments : Remarks: No data available

Other adverse effects

Product:

Additional ecological information : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components:

dimethyl ether:

Results of PBT and vPvB assessment : Non-classified vPvB substance Non-classified PBT substance

n-butyl acetate:

Results of PBT and vPvB assessment : Non-classified PBT substance Non-classified vPvB substance

tin:

Results of PBT and vPvB assessment : Remarks: Not applicable

Hygienic standards:

(Allowable concentration in air, water, including fishery waters, soil)

Components	Air	Water	Soil	Data Source
dimethyl ether	TSEL value: 0,2 mg/m ³	Maximum Permissible Concentration: 1 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 4 Maximum Allowable Concentration: 5 mg/l	No data available	List 2 List 4 List 5



OKS 241

Version 3.0 Revision Date: 04.12.2023 Date of last issue: 14.12.2022 Print Date: 04.12.2023
 Date of first issue: 07.04.2014

		Limiting health hazard indicator: sanitary-toxicological Hazard class: Class 4 - low hazard		
copper	No data available	Maximum Permissible Concentration: 0,001 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3 Maximum Allowable Concentration: 1 mg/l Limiting health hazard indicator: sanitary-toxicological Hazard class: Class 3 - moderately dangerous	ODC value: 33 mg/kg ODC value: 66 mg/kg ODC value: 132 mg/kg Approximately permissible concentration considering the background: 33 mg/kg Hazard class: Class 2 - highly dangerous Approximately permissible concentration considering the background: 66 mg/kg Hazard class: Class 2 - highly dangerous Approximately permissible concentration considering the background: 132 Milligrams per kilogram in finished material or article Hazard class: Class 2 - highly dangerous Maximum allowable	List 4 List 5 List 6 List 7



OKS 241

Version 3.0 Revision Date: 04.12.2023 Date of last issue: 14.12.2022 Print Date: 04.12.2023
 Date of first issue: 07.04.2014

			concentration considering the background: 3 mg/kg Limiting health hazard indicator: General sanitary Hazard class: Class 2 - highly dangerous	
n-butyl acetate	Concentration that prevents irritation, reflex reactions, odors when exposed to 20-30 minutes - maximum one-time: 0,1 mg/m ³ Limiting health hazard indicator: reflectory Hazard class: Class 4 - low hazard	Maximum Permissible Concentration: 0,3 Milligrams per cubed decimeter Limiting health hazard indicator: sanitary and toxicological effects Hazard class: 4 Maximum Allowable Concentration: 0,1 mg/l Limiting health hazard indicator: general sanitary Hazard class: Class 4 - low hazard	No data available	List 1 List 4 List 5
tin	No data available	Maximum Permissible Concentration: 0,112 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 4 Maximum Allowable Concentration: 2 mg/l Limiting health hazard indicator: sanitary-	No data available	List 4 List 5



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

		toxicological Hazard class: Class 3 - moderately dangerous		
molybdenum disulphide	Concentration that provides admissible (acceptable) levels of risk when exposed to at least 24 hours - average daily: 0,02 mg/m ³ (Molybdenum) Limiting health hazard indicator: resorptive Hazard class: Class 3 - moderately dangerous	No data available	No data available	List 1

For explanation of abbreviations see section 16.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : 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.
Offer empty spray cans to an established disposal company.
Pressurized container: Do not pierce or burn, even after use.

The following Waste Codes are only suggestions:

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

14. TRANSPORT INFORMATION

ADR
UN number : UN 1950
Proper shipping name : AEROSOLS



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Class : 2
Packing group : Not assigned by regulation
Labels : 2.1
Tunnel restriction code : (D)
Environmentally hazardous : yes

IATA-DGR

UN/ID No. : UN 1950
Proper shipping name : Aerosols, flammable
Class : 2.1
Packing group : Not assigned by regulation
Labels : Flammable Gas
Packing instruction (cargo aircraft) : 203
Packing instruction (passenger aircraft) : 203

IMDG-Code

UN number : UN 1950
Proper shipping name : AEROSOLS
(naphtha (petroleum), hydrotreated light, copper)
Class : 2.1
Packing group : Not assigned by regulation
Labels : 2.1
EmS Code : F-D, S-U
Marine pollutant : yes

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

Not applicable for product as supplied.

Special precautions for user

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

15. REGULATORY INFORMATION

National regulatory information

Federal Law of 21.07.1997 No. 116-FZ (amended on 11.06.2021) "On industrial safety of hazardous production facilities".
Federal Law of 24.06.1998 No. 89-FZ (amended on 02.07.2021) "On production and consumption waste".
Federal Law of 30.03.1999 No. 52-FZ (amended on 02.07.2021) "On the Sanitary and Epidemiological Well-Being of the Population" (amended and supplemented, entered into force on 31.10.2021).
Federal Law of 04.05.1999 No. 96-FZ "On the protection of atmospheric air" (as amended on December 8, 2020).
Federal Law of 27.12.2002 No. 184-FZ (amended on 02.07.2021) "On Technical Regulation" (amended and supplemented, entered into force on 01.09.2021).
Federal Law of 10.01.2002 No. 7-FZ (amended on 02.07.2021) "On environmental protection".
Federal Law of 22.07.2008 No. 123-FZ "Technical Regulations on Fire Safety Requirements"

OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

TECHNICAL REGULATIONS OF THE CUSTOMS UNION TR CU 030/2012 On requirements for lubricants, oils and special fluids (amended on 03.03.2017).

International Regulations

Montreal Protocol : Not applicable

Rotterdam Convention (Prior Informed Consent) : Not applicable

Stockholm Convention (Persistent Organic Pollutants) : Not applicable

16. OTHER INFORMATION

List of data sources used in the preparation of the Safety Data Sheet

GOST 30333-2007. Interstate standard. Safety data sheet for chemical products. Primary requirements.

GOST 12.1.004-91 System of labor safety standards (SSBT). Fire safety. General requirements.

GOST 12.1.007-76 Occupational safety standards system. Noxious substances. Classification and general safety requirements

GOST 12.1.044-89 SSBT. Fire and explosion hazard of substances and materials. Nomenclature of indicators and methods for their determination.

GOST 12.4.021 System of labor safety standards (SSBT). Ventilation systems. General requirements.

GOST 12.4.137-2001 Special footwear with leather uppers for protection against oil, oil products, acids, alkalis, non-toxic and explosive dust. Technical conditions.

GOST 12.4.252-2013 System of labor safety standards (SSBT). Means of individual protection of hands. Gloves. General technical requirements. Test methods.

GOST 14192-96. Interstate standard. Cargo marking. Minsk, 1998.

GOST 19433-88 Dangerous goods. Classification and labeling.

GOST 31340-2013. Interstate standard. Precautionary labeling of chemical products. General requirements.

GOST 32419-2013 Classification of the hazard of chemical products. General requirements.

GOST 32421-2013 Classification of chemical products, the hazard of which is due to physical and chemical properties. Test methods for explosive chemical products.

GOST 32423-2013 Hazard classification of mixed chemical products by their effects on the body.

GOST 32424-2013 Classification of the hazard of chemical products by their impact on the environment. Basic provisions.

GOST 32425-2013 Hazard classification of mixed chemical products in terms of environmental impact.

GOST R 53264-2019 Fire fighting equipment. Special protective clothing for firefighters. General technical requirements. Test methods.

GOST R 53265-2019 Fire fighting equipment. Personal protective equipment for the feet of the firefighter. General technical requirements. Test methods.

GOST R 53268-2009 Fire fighting equipment. Fire rescue belts. General technical requirements. Test methods.

GOST R 53269-2019 Fire fighting equipment. Firefighters helmets. General technical requirements. Test methods.



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

SanPiN 1.2.2353-08 "Carcinogenic factors and basic requirements for the prevention of carcinogenic hazard".
 SanPiN 1.2.3685-21 "Hygienic standards and requirements for ensuring the safety and (or) harmlessness to humans of environmental factors" dated 28.01.2021.
 SanPiN 2.1.3684-21 "Sanitary and epidemiological requirements for the maintenance of the territories of urban and rural settlements, for water bodies, drinking water and drinking water supply, atmospheric air, soils, living quarters, the operation of industrial, public premises, the organization and implementation of sanitary and anti-epidemic (preventive) measures".
 SanPiN 2.2.0.555-96. 2.2. Labor hygiene. Hygienic requirements for working conditions for women. Sanitary rules and regulations.
 Carriage of dangerous goods, International maritime dangerous goods (IMDG) code.
 Water quality standards for fishery water bodies, including standards for maximum permissible concentrations of harmful substances in the waters of fishery water bodies (approved by order of the Ministry of Agriculture of Russia dated December 13, 2016 No. 552).
 Regulations for the carriage of dangerous goods (Appendix 1 and 2) to the Agreement on International Goods Transport by Rail (SMGS), 2009.
 Agreement on International Goods Transport by Rail (SMGS).
 UN Recommendations on the Transport of Dangerous Goods. Typical rules. Twenty-second revised edition. United Nations, New York and Geneva, 2021.
 Montreal Protocol (Ozone Depleting Substances)
 Stockholm Convention (Persistent Organic Pollutants)

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Eye Irrit.	:	Eye irritation
Flam. Gas	:	Flammable gases
Flam. Liq.	:	Flammable liquids
Press. Gas	:	Gases under pressure
Skin Irrit.	:	Skin irritation
STOT SE	:	Specific target organ toxicity - single exposure
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2019/1831/EU	:	Europe. Commission Directive 2019/1831/EU establishing a fifth list of indicative occupational exposure limit values
91/322/EEC	:	Europe. Commission Directive 91/322/EEC on establishing indicative limit values
RU OEL	:	Russia. Hygienic standards GN 2.2.5.1313-03 Permissible concentration (MAC) of harmful substances in the air of the working area
RU OEL	:	SanPiN 1.2.3685-21 Table 2.1, Table 2.8, Table 2.16 & Table 2.17 Maximum permissible concentrations (MPC) in the air of the working area
2000/39/EC / TWA	:	Limit Value - eight hours
2019/1831/EU / TWA	:	Limit Value - eight hours
2019/1831/EU / STEL	:	Short term exposure limit
91/322/EEC / TWA	:	Limit Value - eight hours
RU OEL / MPC-STEEL	:	Maximum Permissible Concentration - Short Term Exposure
RU OEL / MPC-TWA	:	Maximum Permissible Concentration - Time Weighted Average



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

- RU OEL / MPC-STEL : Maximum Permissible Concentration - Short Term Exposure
- RU OEL / MPC-TWA : Maximum Permissible Concentration - Time Weighted Average
- List 1 : SanPiN 1.2.3685-21 Table 1.1, Table 1.10, & Table 1.11
Maximum permissible concentration (MPC) in the air of urban and rural settlements
- List 2 : SanPiN 1.2.3685-21 Table 1.2, Table 1.12 & Table 1.13
Tentative Safe Exposure Levels (TSEL) in the air of urban and rural settlements
- List 4 : SanPiN 1.2.3685-21 Table 3.13, Table 3.15, Table 3.16 & Table 3.17
Maximum permissible concentrations (MPC) of chemicals in the water of drinking systems of centralized, including hot, and non-centralized water supply, water of underground and surface water bodies of domestic drinking and cultural and domestic water use, water of swimming pools, water parks
- List 5 : Order of the Russian Federal Fisheries Agency "Standards of maximum permissible concentrations of harmful substances in fishery water bodies"
- List 6 : GN 2.1.7.2511-09 Guiding permissible concentration (GPC) of chemical substances in soil
- List 7 : SanPiN 1.2.3685-21 Table 4.1, Table 4.2, Table 4.7, Table 4.8, Table 4.9 & Table 4.10
Maximum allowable concentration (MPC) and approximate allowable concentration (APC) of chemicals in the soil

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; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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 -



OKS 241

Version	Revision Date:	Date of last issue: 14.12.2022	Print Date:
3.0	04.12.2023	Date of first issue: 07.04.2014	04.12.2023

Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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