

OKS 2511

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

Product name : OKS 2511

Manufacturer or supplier's details

Company name of supplier : OKS Spezialechmierstoffe 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
Material Compliance Management

Emergency telephone number : +7 495 628 1687
+49 8142 3051 517

Recommended use of the chemical and restrictions on use

Recommended use : Anticorrosion additive

Restrictions on use : Restricted to professional users.

2. HAZARDS IDENTIFICATION

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

Aerosols : Category 1

Acute toxicity (Inhalation) : Category 5

Skin irritation : Category 2

Eye irritation : Category 2A

Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Auditory system)





Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

GHS-Labeling (According to GOST 31340)

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Hazard pictograms :    

Signal word : Danger

Hazard statements : H222 Extremely flammable aerosol.
H229 Pressurised container: May burst if heated.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H333 May be harmful if inhaled.
H373 May cause damage to organs (Auditory system) through prolonged or repeated exposure if inhaled.
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.
P260 Do not breathe mist.
P273 Avoid release to the environment.

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 agent with propellant and solvent.
Metal powder

Components

Chemical name	Concentration (% w/w)	Occupational Exposure Limits		CAS-No.	EC-No.
		MAC value mg/m ³ / TSEL value	Hazard Class		
butane	>= 30 - < 50	MPC-TWA: 300 mg/m ³ Data Source: RU OEL	4	106-97-8	203-448-7
		MPC-STEL:	4		

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		900 mg/m3 Data Source: RU OEL			
zinc powder — zinc dust (stabilised)	>= 25 - < 30	No data available		7440-66-6	231-175-3
reaction mass of ethylbenzene and xylene	>= 10 - < 20	MPC-TWA: 50 mg/m3 Data Source: RU OEL MPC-STEL: 150 mg/m3 Data Source: RU OEL	3 3		905-588-0
propane	>= 10 - < 20	No data available		74-98-6	200-827-9
2-methoxy-1-methylethyl acetate	>= 1 - < 10	MPC-STEL: 10 mg/m3 Data Source: RU OEL	4	108-65-6	203-603-9
isobutane	>= 1 - < 10	No data available		75-28-5	200-857-2
Hydrocarbons, C11- C12, isoalkanes, < 2% aromatics	>= 1 - < 10	No data available			918-167-1
n-butyl acetate	>= 1 - < 2,5	MPC-TWA: 50 mg/m3 Data Source: RU OEL MPC-STEL: 200 mg/m3 Data Source: RU OEL	4 4	123-86-4	204-658-1
acetone	>= 1 - < 10	MPC-TWA: 200 mg/m3 Data Source: RU OEL MPC-STEL: 800 mg/m3	4 4	67-64-1	200-662-2



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		Data Source: RU OEL			
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4. FIRST AID MEASURES

- If inhaled : Obtain medical attention.
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.
Keep respiratory tract clear.
Do NOT induce vomiting.
Obtain medical attention.
Rinse mouth with water.
- Most important symptoms and effects, both acute and 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.

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5. FIREFIGHTING MEASURES

Flammable properties

- Flash point : -60,00 °C
Method: Abel-Pensky, closed cup
- Ignition temperature : No data available
- Upper explosion limit / Upper flammability limit : 10,9 %(V)
- Lower explosion limit / Lower flammability limit : 1,1 %(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
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 emergency procedures : Evacuate personnel to safe areas.
Ensure adequate ventilation.
Remove all sources of ignition.
Do not breathe vapours or spray mist.
Refer to protective measures listed in sections 7 and 8.
Only qualified personnel equipped with suitable protective equipment may intervene.



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- 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Data Source

SAFETY DATA SHEET
- RU



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butane	106-97-8	MPC-TWA (vapour and/or gas)	300 mg/m3	RU OEL (2021-02-03)
Further information: Class 4 - Low hazard				
		MPC-STEEL (vapour and/or gas)	900 mg/m3	RU OEL (2021-02-03)
Further information: Class 4 - Low hazard				
reaction mass of ethylbenzene and xylene	Not Assigned	TWA	50 ppm 221 mg/m3	2000/39/EC (2000-06-16)
		STEEL	100 ppm 442 mg/m3	2000/39/EC (2000-06-16)
		MPC-TWA (vapour and/or gas)	50 mg/m3	RU OEL (2021-02-03)
Further information: Class 3 - Moderately dangerous				
		MPC-STEEL (vapour and/or gas)	150 mg/m3	RU OEL (2021-02-03)
Further information: Class 3 - Moderately dangerous				
2-methoxy-1-methylethyl acetate	108-65-6	TWA	50 ppm 275 mg/m3	2000/39/EC (2000-06-16)
		STEEL	100 ppm 550 mg/m3	2000/39/EC (2000-06-16)
		MPC-STEEL (vapour and/or gas)	10 mg/m3	RU OEL (2021-02-03)
Further information: Class 4 - Low hazard				
n-butyl acetate	123-86-4	STEEL	150 ppm 723 mg/m3	2019/1831/E U (2019-10-31)
		TWA	50 ppm 241 mg/m3	2019/1831/E U (2019-10-31)
		MPC-TWA (vapour and/or gas)	50 mg/m3	RU OEL (2021-02-03)
Further information: Class 4 - Low hazard				
		MPC-STEEL (vapour and/or gas)	200 mg/m3	RU OEL (2021-02-03)
Further information: Class 4 - Low hazard				
acetone	67-64-1	TWA	500 ppm 1.210 mg/m3	2000/39/EC (2000-06-16)
		MPC-TWA (vapour and/or gas)	200 mg/m3	RU OEL (2021-02-03)
Further information: Class 4 - Low hazard				
		MPC-STEEL (vapour and/or gas)	800 mg/m3	RU OEL (2021-02-03)

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Further information: Class 4 - Low hazard

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.

Filter type : Recommended Filter type:
Organic gas and low boiling vapour type

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.

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 : grey

Odour : characteristic

Odour Threshold : No data available

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

Melting point/range : No data available

Boiling point/boiling range : -41 °C
(1.013 hPa)

Flash point : -60,00 °C
Method: Abel-Pensky, closed cup

Evaporation rate : No data available

Flammability (solid, gas) : Extremely flammable aerosol.

Self-ignition : not auto-flammable

Upper explosion limit / Upper
flammability limit : 10,9 %(V)

Lower explosion limit / Lower
flammability limit : 1,1 %(V)

Vapour pressure : 4.000 hPa (20 °C)

Relative vapour density : No data available

Relative density : 0,8 (20 °C)
Reference substance: Water
The value is calculated

Density : 0,80 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

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Viscosity, dynamic : No data available

Viscosity, kinematic : not determined

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 : Acute toxicity estimate: > 5.000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 10 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Remarks: Harmful by inhalation.

Symptoms: Inhalation may provoke the following symptoms:,

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Respiratory disorder

Acute dermal toxicity : Acute toxicity estimate: > 5.000 mg/kg
Method: Calculation method

Symptoms: Redness, Local irritation

Components:

butane:

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

zinc powder — zinc dust (stabilised):

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 401
GLP: yes
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5,41 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

reaction mass of ethylbenzene and xylene:

Acute oral toxicity : LD50 (Rat): 3.523 - 4.000 mg/kg

Acute inhalation toxicity : Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : Assessment: The component/mixture is moderately toxic after single contact with skin.

2-methoxy-1-methylethyl acetate:

Acute oral toxicity : LD50 (Rat): 6.190 mg/kg
Method: OECD Test Guideline 401

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GLP: yes

Acute inhalation toxicity : LC50 (Rat): 35,7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg
Method: OECD Test Guideline 402

isobutane:

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

Hydrocarbons, C11-C12, isoalkanes, < 2% aromatics:

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

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg
Method: OECD Test Guideline 402

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

acetone:

Acute oral toxicity : LD50 Oral (Rat): 5.800 mg/kg

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Skin corrosion/irritation

Product:

Remarks : Irritating to skin.

Components:

zinc powder — zinc dust (stabilised):

Species : Rabbit
Assessment : No skin irritation
Result : No skin irritation

reaction mass of ethylbenzene and xylene:

Assessment : Irritating to skin.
Result : Irritating to skin.

2-methoxy-1-methylethyl acetate:

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

n-butyl acetate:

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

Serious eye damage/eye irritation

Product:

Remarks : Irritating to eyes.

Components:

zinc powder — zinc dust (stabilised):

Species : Rabbit
Result : No eye irritation
Exposure time : 24 h
Assessment : No eye irritation
Method : OECD Test Guideline 405
GLP : yes

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reaction mass of ethylbenzene and xylene:

Result : Irritating to eyes.
Assessment : Irritating to eyes.

2-methoxy-1-methylethyl acetate:

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

n-butyl acetate:

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

acetone:

Species : Rabbit
Result : Eye irritation

Respiratory or skin sensitisation

Product:

Remarks : This information is not available.

Components:

zinc powder — zinc dust (stabilised):

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

reaction mass of ethylbenzene and xylene:

Assessment : Did not cause sensitisation on laboratory animals.
Result : Did not cause sensitisation on laboratory animals.

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2-methoxy-1-methylethyl acetate:

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

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.

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: No data available

Genotoxicity in vivo : Remarks: No data available

Components:

zinc powder — zinc dust (stabilised):

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

2-methoxy-1-methylethyl acetate:

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

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

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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.

Carcinogenicity

Product:

Remarks : No data available

Components:

zinc powder — zinc dust (stabilised):

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

2-methoxy-1-methylethyl acetate:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

n-butyl acetate:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

zinc powder — zinc dust (stabilised):

Reproductive toxicity - : - Fertility -

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Assessment

No toxicity to reproduction
- Teratogenicity -
No effects on or via lactation

reaction mass of ethylbenzene and xylene:

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

2-methoxy-1-methylethyl acetate:

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

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

Components:

reaction mass of ethylbenzene and xylene:

Exposure routes : Inhalation
Target Organs : Respiratory system
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

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2-methoxy-1-methylethyl acetate:

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

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.

acetone:

Exposure routes : Inhalation
Assessment : May cause drowsiness or dizziness.

STOT - repeated exposure

Components:

reaction mass of ethylbenzene and xylene:

Exposure routes : Inhalation
Target Organs : Auditory system
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

2-methoxy-1-methylethyl acetate:

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

n-butyl acetate:

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.

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Components:

n-butyl acetate:

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

Aspiration toxicity

Product:

This information is not available.

Components:

zinc powder — zinc dust (stabilised):

No aspiration toxicity classification

reaction mass of ethylbenzene and xylene:

May be fatal if swallowed and enters airways.

2-methoxy-1-methylethyl acetate:

No aspiration toxicity classification

Hydrocarbons, C11-C12, isoalkanes, < 2% aromatics:

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.
Possible risk of irreversible effects.

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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:

zinc powder — zinc dust (stabilised):

Toxicity to fish : LC50 (Oncorhynchus kisutch (coho salmon)): 0,727 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,937 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

M-Factor (Acute aquatic toxicity) : 1

M-Factor (Chronic aquatic toxicity) : 1

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

reaction mass of ethylbenzene and xylene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2,6 mg/l

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Exposure time: 96 h
Method: OECD Test Guideline 203

2-methoxy-1-methylethyl acetate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 - 180 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 373 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (green algae)): >= 1.000 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 21 d
Test Type: Reproduction Test
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC10 (activated sludge): > 1.000 mg/l
Exposure time: 0,5 h
Test Type: static test
Method: OECD Test Guideline 209

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

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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 (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 23 mg/l
Exposure time: 21 d
Test Type: Reproduction Test
GLP: yes

Toxicity to microorganisms : EC50 (Tetrahymena pyriformis): 356 mg/l
Exposure time: 40 h
Test Type: Growth inhibition

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Physico-chemical removability : Remarks: No data available

Components:

reaction mass of ethylbenzene and xylene:

Biodegradability : Result: rapidly biodegradable
Biodegradation: 90 %
Exposure time: 28 d

2-methoxy-1-methylethyl acetate:

Biodegradability : aerobic
Inoculum: activated sludge
Result: rapidly biodegradable
Biodegradation: 83 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
GLP: yes

Hydrocarbons, C11-C12, isoalkanes, < 2% aromatics:

Biodegradability : Result: Not readily biodegradable.

n-butyl acetate:

Biodegradability : Primary biodegradation

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

acetone:

Biodegradability : Result: rapidly biodegradable

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:

butane:

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

reaction mass of ethylbenzene and xylene:

Partition coefficient: n-octanol/water : log Pow: 3,12 - 3,2

propane:

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

2-methoxy-1-methylethyl acetate:

Bioaccumulation : Bioconcentration factor (BCF): 3,16

Partition coefficient: n-octanol/water : log Pow: 0,36 (25 °C)
Method: OECD Test Guideline 107
GLP: yes

isobutane:

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

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Hydrocarbons, C11-C12, isoalkanes, < 2% aromatics:

Bioaccumulation : Remarks: No data available

Partition coefficient: n-octanol/water : Remarks: No data available

n-butyl acetate:

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

acetone:

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 0,2

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:

2-methoxy-1-methylethyl acetate:

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

n-butyl acetate:

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

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Hygienic standards:

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

Components	Air	Water	Soil	Data Source
butane	Concentration that prevents irritation, reflex reactions, odors when exposed to 20-30 minutes - maximum one-time: 200 mg/m ³ Limiting health hazard indicator: reflectory Hazard class: Class 4 - low hazard	Maximum Permissible Concentration: 0,05 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3	No data available	List 1 List 5
zinc powder — zinc dust (stabilised)	No data available	Maximum Permissible Concentration: 0,01 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3 Maximum Permissible Concentration: 0,05 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3 Maximum Allowable Concentration: 5 mg/l Limiting health hazard indicator: sanitary-toxicological Hazard class: Class 3 - moderately dangerous	ODC value: 55 mg/kg ODC value: 110 mg/kg ODC value: 220 mg/kg Approximately permissible concentration considering the background: 55 mg/kg Hazard class: Class 1 - extremely dangerous Approximately permissible concentration considering the background: 110 mg/kg Hazard class: Class 1 - extremely dangerous Approximately permissible concentration considering the background: 220 mg/kg	List 4 List 5 List 6 List 7

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			<p>Hazard class: Class 1 - extremely dangerous Maximum allowable concentration considering the background: 23 mg/kg Limiting health hazard indicator: Translocation Hazard class: Class 1 - extremely dangerous</p>	
<p>reaction mass of ethylbenzene and xylene</p>	<p>Concentration that prevents irritation, reflex reactions, odors when exposed to 20-30 minutes - maximum one-time: 0,2 mg/m³ Limiting health hazard indicator: reflectory Hazard class: Class 3 - moderately dangerous Concentration that provides permissible (acceptable) levels of risk for chronic (at least 1 year) exposure - average daily: 0,1 mg/m³ Limiting health hazard indicator: reflectory Hazard class: Class 3 - moderately dangerous</p>	<p>Maximum Allowable Concentration: 0,05 mg/l Limiting health hazard indicator: organoleptic; changes the smell of water Hazard class: Class 3 - moderately dangerous</p>	<p>Maximum allowable concentration considering the background: 0,3 mg/kg Limiting health hazard indicator: Translocation</p>	<p>List 1 List 4 List 7</p>
<p>propane</p>	<p>No data available</p>	<p>Maximum Permissible Concentration: 0,05 Milligrams per cubed decimeter</p>	<p>No data available</p>	<p>List 5</p>

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		Limiting health hazard indicator: toxic Hazard class: 3		
2-methoxy-1-methylethyl acetate	Concentration that prevents irritation, reflex reactions, odors when exposed to 20-30 minutes - maximum one-time: 0,5 mg/m ³ Limiting health hazard indicator: reflectory Hazard class: Class 4 - low hazard	No data available	No data available	List 1
isobutane	Concentration that prevents irritation, reflex reactions, odors when exposed to 20-30 minutes - maximum one-time: 15 mg/m ³ Limiting health hazard indicator: reflectory Hazard class: Class 4 - low hazard	Maximum Permissible Concentration: 0,05 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3	No data available	List 1 List 5
Hydrocarbons, C11-C12, isoalkanes, < 2% aromatics	No data available	Maximum Permissible Concentration: 0,05 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3	No data available	List 5
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	No data available	List 1 List 4 List 5

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		Concentration: 0,1 mg/l Limiting health hazard indicator: general sanitary Hazard class: Class 4 - low hazard		
acetone	Concentration that prevents irritation, reflex reactions, odors when exposed to 20-30 minutes - maximum one-time: 0,35 mg/m ³ Limiting health hazard indicator: reflectory Hazard class: Class 4 - low hazard	Maximum Permissible Concentration: 0,05 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3 Maximum Allowable Concentration: 2,2 mg/l Limiting health hazard indicator: general sanitary Hazard class: Class 3 - moderately dangerous	No data available	List 1 List 4 List 5

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

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14. TRANSPORT INFORMATION

ADR

UN number : UN 1950
Proper shipping name : AEROSOLS
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
(zinc powder - zinc dust (stabilized))
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



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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"

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.

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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.
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 RE	: Specific target organ toxicity - repeated exposure
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
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
2000/39/EC / STEL	: Short term exposure limit
2019/1831/EU / TWA	: Limit Value - eight hours
2019/1831/EU / STEL	: Short term exposure limit
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

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- Maximum permissible concentration (MPC) 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 - 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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