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

1.1 Product identifier

Product name : OKS 2561

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

Use of the : Corrosion inhibitor

Substance/Mixture

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-Gernlinden

Deutschland

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

National contact

1.4 Emergency telephone number

Emergency telephone

number

: +33 1 45 42 59 59 ORFILA

+33 1 72 11 00 03 NCEC

+49 8142 3051 517

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Aerosols, Category 1 H222: Extremely flammable aerosol.

H229: Pressurised container: May burst if heated.

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

a brand of
FREUDENBERG

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Specific target organ toxicity - single exposure, Category 3, Central nervous system

Long-term (chronic) aquatic hazard,

Category 2

H336: May cause drowsiness or dizziness.

H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms





Signal word Danger

Hazard statements H222 Extremely flammable aerosol.

H229 Pressurised container: May burst if heated.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

Supplemental Hazard

Statements

EUH066

Repeated exposure may cause skin

dryness or cracking.

Prevention: Precautionary statements

> 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.

P261 Avoid breathing mist.

P273 Avoid release to the environment.

Storage:

P410 + P412 Protect from sunlight. Do not expose to

temperatures exceeding 50 °C/ 122 °F.

Hazardous components which must be listed on the label:

butanone

acetone

n-butyl acetate



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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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Active agent with propellant and solvent.

Metal powder

Components

| Chemical name | CAS-No. EC-No. Index-No. Registration number | Classification | specific concentration limit M-Factor Notes Acute toxicity estimate | Concentration (% w/w) |
|----------------|---|---|---|--------------------------|
| butanone | 78-93-3 201-159-0 606-002-00-3 01-2119457290-43- XXXX | Flam. Liq.2; H225 Eye Irrit.2; H319 STOT SE3; H336; EUH066 | | >= 30 - < 50 |
| acetone | 67-64-1 200-662-2 606-001-00-8 01-2119471330-49- XXXX | Flam. Liq.2; H225 Eye Irrit.2; H319 STOT SE3; H336; EUH066 | | >= 10 - < 20 |
| cyclopentanone | 120-92-3 204-435-9 606-025-00-9 01-2119495595-21- | Flam. Liq.3; H226 Skin Irrit.2; H315 Eye Irrit.2; H319 | | >= 1 - < 10 |



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| | xxxx | | | |
|---|---|---|--------------------|---------------|
| zinc powder — zinc dust (stabilised) | 7440-66-6 231-175-3 030-001-01-9 01-2119467174-37- XXXX | Aquatic Acute1; H400 Aquatic Chronic1; H410 | M-Factor: 1/1 | >= 2,5 - < 10 |
| n-butyl acetate | 123-86-4 204-658-1 607-025-00-1 01-2119485493-29- XXXX | Flam. Liq.3; H226 STOT SE3; H336; EUH066 | | >= 1 - < 10 |
| Substances with a work | place exposure limit : | | | |
| dimethyl ether | 115-10-6 204-065-8 603-019-00-8 01-2119472128-37- XXXX | Flam. Gas1A; H220 Press. GasLiquefied gas; H280 | Note U (table 3.1) | >= 30 - < 50 |
| aluminium powder (stabilised) | 7429-90-5 231-072-3 013-002-00-1 01-2119529243-45- XXXX | Flam. Sol.1; H228 | Note T | >= 1 - < 10 |

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of 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



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persists.

Wash clothing before reuse.

Thoroughly clean shoes before reuse.

Wash skin thoroughly with soap and water or use recognized

skin cleanser.

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 accidentally swallowed obtain immediate medical attention.

Keep respiratory tract clear. Do NOT induce vomiting. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Inhalation may provoke the following symptoms:

Unconsciousness

Dizziness Drowsiness Headache Nausea Tiredness

Skin contact may provoke the following symptoms:

Erythema

Risks : Central nervous system depression

Can be absorbed through skin.

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 : ABC powder

Unsuitable extinguishing

media

High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during : Fire Hazard

firefighting Do not let product enter drains.

Contains gas under pressure; may explode if heated. Beware of vapours accumulating to form explosive



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concentrations. Vapours can accumulate in low areas.

Hazardous combustion

products

: Carbon oxides

Halogenated compounds

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.

Collect contaminated fire extinguishing water separately. This

must not be discharged into drains. Cool containers/tanks with water spray.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Evacuate personnel to safe areas.

Ensure adequate ventilation.
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.

6.2 Environmental precautions

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.

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). Keep in suitable, closed containers for disposal.

Non-sparking tools should be used.

6.4 Reference to other sections

For personal protection see section 8.



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SECTION 7: Handling and storage

7.1 Precautions for safe handling

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.

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

: 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.

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 |
|------------|---------|-------------------------------|--------------------|------------|
| butanone | 78-93-3 | STEL | 300 ppm | 2000/39/EC |



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| | | | 900 mg/m3 | (2000-06-16) | |
|------------------|---|-----------------------|-------------------------------|---------------|--|
| | Further infor | mation: Indicative | , | | |
| | | TWA | 200 ppm | 2000/39/EC | |
| | | | 600 mg/m3 | (2000-06-16) | |
| | Further information: Indicative | | | | |
| | | VME | 200 ppm | FR VLE | |
| | | | 600 mg/m3 | (2012-05-10) | |
| | Further information: Risk of penetration through skin, Regulatory binding exposure limits | | | | |
| | | VLCT (VLE) | 300 ppm | FR VLE | |
| | | | 900 mg/m3 | (2012-05-10) | |
| | Further information exposure lim | • | etration through skin, Regula | atory binding | |
| dimethyl ether | 115-10-6 | TWA | 1.000 ppm | 2000/39/EC | |
| , | | | 1.920 mg/m3 | (2000-06-16) | |
| | Further infor | mation: Indicative | | | |
| | | VME | 1.000 ppm | FR VLE | |
| | | | 1.920 mg/m3 | (2005-02-01) | |
| | Further infor | mation: Regulatory i | ndicative exposure limits | <u> </u> | |
| acetone | 67-64-1 | TWA | 500 ppm | 2000/39/EC | |
| | | | 1.210 mg/m3 | (2000-06-16) | |
| | Further infor | mation: Indicative | | <u> </u> | |
| | | VME | 500 ppm | FR VLE | |
| | | | 1.210 mg/m3 | (2007-12-01) | |
| | Further information: Regulatory binding exposure limits | | | | |
| | | VLCT (VLE) | 1.000 ppm | FR VLE | |
| | | | 2.420 mg/m3 | (2007-12-01) | |
| | Further infor | mation: Regulatory b | oinding exposure limits | | |
| aluminium powder | 7429-90-5 | VME | 10 mg/m3 | FR VLE | |
| (stabilised) | | | | (2016-10-01) | |
| | Further infor | mation: Indicative ex | cposure limits | | |
| | | VME (powder) | 5 mg/m3 | FR VLE | |
| | | , , | | (2016-10-01) | |
| | Further infor | mation: Indicative ex | cposure limits | | |
| n-butyl acetate | 123-86-4 | STEL | 150 ppm | 2019/1831/E | |
| · | | | 723 mg/m3 | U | |
| | | | | (2019-10-31) | |
| | Further infor | mation: Indicative | | | |
| | | TWA | 50 ppm | 2019/1831/E | |
| | | | 241 mg/m3 | U | |
| | | | | (2019-10-31) | |
| | Further information: Indicative | | | | |
| | | VME | 50 ppm | FR VLE | |
| | <u> </u> | | 241 mg/m3 | (2021-12-29) | |
| | Further infor | mation: Regulatory b | pinding exposure limits | | |
| | | VLCT (VLE) | 150 ppm | FR VLE | |
| | | , , | 723 mg/m3 | (2021-12-29) | |
| | Further infor | mation: Regulatory b | pinding exposure limits | , | |
| | | | | | |

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

| Cubatanaa nama | Endilles | Evenouire regites | Detential health | Value |
|---|----------|-------------------|----------------------------|------------|
| Substance name | End Use | Exposure routes | Potential health effects | |
| butanone | Workers | Inhalation | Long-term systemic effects | 600 mg/m3 |
| | Workers | Skin contact | Long-term systemic effects | 1161 mg/kg |
| dimethyl ether | Workers | Inhalation | Long-term exposure | 1894 mg/m3 |
| acetone | Workers | Inhalation | Long-term systemic effects | 1210 mg/m3 |
| | Workers | Skin contact | Long-term systemic effects | 186 mg/kg |
| cyclopentanone | Workers | Inhalation | Long-term systemic effects | 61 mg/m3 |
| | Workers | Skin contact | Long-term systemic effects | 7 mg/kg |
| zinc powder — zinc dust (stabilised) | Workers | Inhalation | Long-term systemic effects | 5 mg/m3 |
| | Workers | Skin contact | Long-term systemic effects | 83 mg/kg |
| aluminium powder (stabilised) | Workers | Inhalation | Long-term systemic effects | 3,72 mg/m3 |
| | Workers | Inhalation | Long-term local effects | 3,72 mg/m3 |
| n-butyl acetate | Workers | Inhalation | Long-term systemic effects | 300 mg/m3 |
| | Workers | Inhalation | Acute systemic effects | 600 mg/m3 |
| | Workers | Dermal | Long-term local effects | 11 mg/cm2 |

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

| Substance name | Environmental Compartment | Value |
|--------------------------------------|---------------------------|-------------|
| dimethyl ether | Fresh water | 0,155 mg/l |
| | Marine water | 0,016 mg/l |
| | Sewage treatment plant | 160 mg/l |
| | Fresh water sediment | 0,681 mg/kg |
| | Marine sediment | 0,069 mg/kg |
| | Soil | 0,045 mg/kg |
| acetone | Fresh water | 10,6 mg/l |
| | Marine water | 1,06 mg/l |
| | Sewage treatment plant | 100 mg/l |
| | Fresh water sediment | 30,4 mg/kg |
| | Marine sediment | 3,04 mg/kg |
| | Soil | 29,5 mg/kg |
| zinc powder — zinc dust (stabilised) | Fresh water | 0,0206 mg/l |
| | Fresh water sediment | 117,8 mg/kg |
| | Marine water | 0,0061 mg/l |



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| | Marine sediment | 56,5 mg/kg |
|-----------------|------------------------------------|--------------|
| | Microbiological Activity in Sewage | 0,052 mg/l |
| | Treatment Systems | |
| | Soil | 35,6 mg/kg |
| n-butyl acetate | Fresh water | 0,18 mg/l |
| | Marine water | 0,018 mg/l |
| | Microbiological Activity in Sewage | 35,6 mg/l |
| | Treatment Systems | _ |
| | Fresh water sediment | 0,981 mg/kg |
| | Marine sediment | 0,0981 mg/kg |
| | Soil | 0,09 mg/kg |

8.2 Exposure controls

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

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 : 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 (AX)

Protective measures : The type of protective equipment must be selected according

to the concentration and amount of the dangerous substance

at the specific workplace.



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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state aerosol

Colour silver

Odour characteristic

Odour Threshold No data available

Melting point/range No data available

No data available Boiling point/boiling range

Flammability (solid, gas) Extremely flammable aerosol.

Upper explosion limit / Upper

flammability limit

15 %(V)

Lower explosion limit / Lower

flammability limit

1 %(V)

Flash point -60 °C

Method: Abel-Pensky

Auto-ignition temperature 365 °C

Decomposition temperature No data available

pΗ Not applicable

substance/mixture is non-soluble (in water)

Viscosity

Viscosity, dynamic No data available

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

Solubility(ies)

Water solubility insoluble

Solubility in other solvents No data available

Partition coefficient: n-No data available

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octanol/water

Vapour pressure : 5.500 hPa (20 °C)

Relative density : 0,69 (20 °C)

Reference substance: Water The value is calculated

Density : 0,69 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 : No data available

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 : Heat, flames and sparks.

Strong sunlight for prolonged periods.

Risk of receptacle bursting.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents



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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

Product:

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

Symptoms: Central nervous system depression

Acute inhalation toxicity : Remarks: Respiration of solvent vapour may cause dizziness.

Harmful by inhalation.

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

Acute dermal toxicity : Remarks: Prolonged or repeated skin contact with liquid may

cause defatting resulting in drying, redness and possible

blistering.

Symptoms: Skin disorders

Components:

butanone:

Acute oral toxicity : LD50 (Rat): 2.193 mg/kg

Method: OECD Test Guideline 423

GLP: yes

Acute inhalation toxicity : LC50 (Rat): 34 mg/l

Exposure time: 4 h
Test atmosphere: vapour

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

Method: OECD Test Guideline 402

acetone:

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

cyclopentanone:

Acute oral toxicity : LD50 Oral (Rat): > 2.000 mg/kg



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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

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

dimethyl ether:

Acute inhalation toxicity : LC50 (Rat): 309 mg/l

Exposure time: 4 h Test atmosphere: gas

aluminium powder (stabilised):

Acute inhalation toxicity : LC50 (Rat): > 5,09 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Assessment: The substance or mixture has no acute

inhalation toxicity

Skin corrosion/irritation

Product:

Remarks : This information is not available.

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Components:

butanone:

Species : Rabbit

Assessment : No skin irritation

Method : OECD Test Guideline 404

Result : No skin irritation

Result : Repeated exposure may cause skin dryness or cracking.

acetone:

Result : Repeated exposure may cause skin dryness or cracking.

cyclopentanone:

Species : Rabbit Result : Skin irritation

zinc powder - zinc dust (stabilised):

Species : Rabbit

Assessment : No skin irritation Result : No skin irritation

n-butyl acetate:

Species : Rabbit

Assessment : No skin irritation

Method : OECD Test Guideline 404

Result : Repeated exposure may cause skin dryness or cracking.

dimethyl ether:

Assessment : No skin irritation Result : No skin irritation

aluminium powder (stabilised):

Species : Rabbit

Assessment : No skin irritation Result : No skin irritation

Serious eye damage/eye irritation

Product:

Remarks : Irritating to eyes.

Components:

butanone:



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Species : Rabbit

Assessment : Irritating to eyes.

Method : OECD Test Guideline 405

Result : Irritating to eyes.

acetone:

Species : Rabbit Result : Eye irritation

cyclopentanone:

Species : Rabbit Result : Eye irritation

zinc powder - zinc dust (stabilised):

Species : Rabbit Exposure time : 24 h

Assessment : No eye irritation

Method : OECD Test Guideline 405

Result : No eye irritation

GLP : yes

n-butyl acetate:

Species : Rabbit

Assessment : No eye irritation

Method : OECD Test Guideline 405

Result : No eye irritation

GLP : yes

dimethyl ether:

Assessment : No eye irritation Result : No eye irritation

aluminium powder (stabilised):

Species : Rabbit

Assessment : No eye irritation Result : No eye irritation

Respiratory or skin sensitisation

Product:

Remarks : This information is not available.

Components:

butanone:



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Test Type : Buehler Test Species : Guinea pig

Assessment : Does not cause skin sensitisation.

Method : OECD Test Guideline 406

Result : Does not cause skin sensitisation.

GLP : yes

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

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.

dimethyl ether:

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

aluminium powder (stabilised):

Species : Guinea pig

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

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: No data available

Genotoxicity in vivo : Remarks: No data available

Components:

butanone:

Germ cell mutagenicity-

Assessment

Tests on bacterial or mammalian cell cultures did not show

mutagenic effects.

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zinc powder - zinc dust (stabilised):

Germ cell mutagenicity-

Assessment

: Tests on bacterial or mammalian cell cultures did not show

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

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.

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

Carcinogenicity

Product:

Remarks : No data available

Components:

butanone:

Carcinogenicity - Assessment

: Not classifiable as a human carcinogen.

zinc powder — zinc dust (stabilised):

Carcinogenicity - : No evidence of carcinogenicity in animal studies.

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Assessment

n-butyl acetate:

Carcinogenicity - : Not classifiable as a human carcinogen.

Assessment

dimethyl ether:

Species : Rat

Application Route : inhalation (gas)

Exposure time : 2 Years : 47 mg/l

Method : OECD Test Guideline 453

Result : negative

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal : Remarks: No data available

development

Components:

butanone:

Reproductive toxicity - : - Fertility -

Assessment No toxicity to reproduction

- Teratogenicity -

No effects on or via lactation

zinc powder - zinc dust (stabilised):

Reproductive toxicity - : - Fertility -

Assessment No toxicity to reproduction

- Teratogenicity -

No effects on or via lactation

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

a brand of
FREUDENBERG

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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

dimethyl ether:

Reproductive toxicity -

- Fertility -

Assessment

Animal testing did not show any effects on fertility.

STOT - single exposure

Product:

Remarks : No data available

Components:

butanone:

Exposure routes : Inhalation

Target Organs : Respiratory system

Assessment : The substance or mixture is classified as specific target organ

toxicant, single exposure, category 3 with narcotic effects.,

May cause drowsiness or dizziness.

acetone:

Exposure routes : Inhalation

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.

STOT - repeated exposure

Product:

Remarks : No data available

Components:

butanone:

Assessment : The substance or mixture is not classified as specific target

a brand of
FREUDENBERG

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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.

Components:

n-butyl acetate:

Species : Rat

NOAEL : 125 mg/kg

Application Route : Oral

Aspiration toxicity

Product:

This information is not available.

Components:

butanone:

No aspiration toxicity classification

zinc powder — zinc dust (stabilised):

No aspiration toxicity classification

n-butyl acetate:

No aspiration toxicity classification

dimethyl ether:

No aspiration toxicity classification

11.2 Information on other hazards

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



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(EU) 2017/2100 or Commission Regulation (EU) 2018/605 at

levels of 0.1% or higher.

Further information

Product:

Remarks : Risks of irreversible effects after a single exposure.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: Toxic to aquatic organisms, may cause long-term

adverse effects in the aquatic environment.

Toxicity to daphnia and other :

aquatic invertebrates

Remarks: No data available

Toxicity to algae/aquatic

plants

Remarks: No data available

Toxicity to microorganisms :

Remarks: No data available

Components:

butanone:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2.993 mg/l

Exposure time: 96 h Test Type: static test

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 308 mg/l

Exposure time: 48 h Test Type: static test

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): 1.972

mg/l

Exposure time: 72 h Test Type: static test

Method: OECD Test Guideline 201

GLP: yes

Toxicity to microorganisms : EC50 (Pseudomonas putida): 1.150 mg/l

Exposure time: 16 h Test Type: static test Method: DIN 38 412 Part 8



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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.

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 microorganisms : EC50 (Tetrahymena pyriformis): 356 mg/l

Exposure time: 40 h Test Type: Growth inhibition

Toxicity to daphnia and other :

aquatic invertebrates (Chronic toxicity)

NOEC: 23 mg/l Exposure time: 21 d

Species: Daphnia magna (Water flea)

Test Type: Reproduction Test

GLP: yes

dimethyl ether:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 4.100 mg/l

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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

aluminium powder (stabilised):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,12 mg/l

Exposure time: 96 h Test Type: static test

Remarks: No toxicity at the limit of solubility

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Physico-chemical

removability

Remarks: No data available

Components:

butanone:

Biodegradability : Test Type: aerobic

Inoculum: activated sludge Result: rapidly biodegradable Biodegradation: 98 %

Exposure time: 28 d

Method: OECD Test Guideline 301D

GLP: yes

acetone:

Biodegradability : Result: rapidly biodegradable

cyclopentanone:

Biodegradability : Result: rapidly biodegradable

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n-butyl acetate:

Biodegradability : Test Type: Primary biodegradation

Result: rapidly biodegradable Biodegradation: 83 %

Exposure time: 28 d

Method: OECD Test Guideline 301D

dimethyl ether:

Biodegradability : Test Type: aerobic

Inoculum: activated sludge Result: Not readily biodegradable.

Biodegradation: 5 % Exposure time: 28 d

Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

Components:

butanone:

Bioaccumulation : Remarks: Due to the distribution coefficient n-octanol/water,

accumulation in organisms is not expected.

Partition coefficient: n-

octanol/water

log Pow: 0,3 (40 °C)

Method: OECD Test Guideline 117

GLP: yes

acetone:

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-

octanol/water

log Pow: 0,2

cyclopentanone:

Bioaccumulation : Remarks: No data available

n-butyl acetate:

Partition coefficient: n-

log Pow: 2,3 (25 °C) pH: 7

octanol/water

Method: OECD Test Guideline 117

GLP: yes

dimethyl ether:



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Partition coefficient: n-

octanol/water

: log Pow: 0,07 (25 °C)

12.4 Mobility in soil

Product:

Mobility : Remarks: No data available

Distribution among

environmental compartments

Remarks: No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered

to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

0.1% or higher.

Components:

butanone:

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

n-butyl acetate:

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

dimethyl ether:

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

: Toxic to aquatic life with long lasting effects.



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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : 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.

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

SECTION 14: Transport information

14.1 UN number or ID number

ADN : UN 1950
ADR : UN 1950
RID : UN 1950
IMDG : UN 1950
IATA : UN 1950

14.2 UN proper shipping name

ADN : AEROSOLS
ADR : AEROSOLS
RID : AEROSOLS
IMDG : AEROSOLS

IATA : Aerosols, flammable

14.3 Transport hazard class(es)

ADN : 2 **ADR** : 2 **RID** : 2



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IMDG : 2.1 IATA : 2.1

14.4 Packing group

ADN

Packing group : Not assigned by regulation

Classification Code : 5F Labels : 2.1

ADR

Packing group : Not assigned by regulation

Classification Code : 5F Labels : 2.1 Tunnel restriction code : (D)

RID

Packing group : Not assigned by regulation

Classification Code : 5F Hazard Identification Number : 23 Labels : 2.1

IMDG

Packing group : Not assigned by regulation

Labels : 2.1 EmS Code : F-D, S-U

IATA (Cargo)

Packing instruction (cargo : 203

aircraft)

Packing instruction (LQ) : Y203

Packing group : Not assigned by regulation

Labels : Flammable Gas

IATA (Passenger)

Packing instruction : 203

(passenger aircraft)

Packing instruction (LQ) : Y203

Packing group : Not assigned by regulation

Labels : Flammable Gas

14.5 Environmental hazards

ADN

Environmentally hazardous : yes

adr

Environmentally hazardous : yes

rid

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

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14.6 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.

14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - 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 75

If you intend to use this product as tattoo ink, please contact your

vendor.

zinc powder — zinc dust (stabilised)

(Number on list 75)

REACH - Candidate List of Substances of Very High

Concern for Authorisation (Article 59). (EU SVHC)

(2001)

This product does not contain substances of very high concern

(Regulation (EC) No

1907/2006 (REACH), Article 57).

Regulation (EC) No 1005/2009 on substances that

deplete the ozone layer

(EC 1005/2009)

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)

: Not applicable



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(EU. REACH-Annex XIV)

Regulation (EU) 2019/1148 on the marketing and use of : acetone (ANNEX II)

explosives precursors

This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

Seveso III: Directive 2012/18/EU of the European P3a Parliament and of the Council on the control of

major-accident hazards involving dangerous substances.

E2 ENVIRONMENTAL HAZARDS

FLAMMABLE AEROSOLS

P₅c

Installations classified for the :

protection of the environment (Environment Code R511-9)

4320, 4511

Occupational Illnesses (R-

461-3, France)

84, 44

Reinforced medical supervision (R4624-23)

The product has no CMR properties category 1, 1A or 1B

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial

emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: 84,18 %

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.



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SECTION 16: Other information

Full text of H-Statements

H220 : Extremely flammable gas.

H225 : Highly flammable liquid and vapour. H226 : Flammable liquid and vapour.

H228 : Flammable solid.

H280 : Contains gas under pressure; may explode if heated.

H315 : Causes skin irritation.

H319 : Causes serious eye irritation.H336 : May cause drowsiness or dizziness.

H400 : Very toxic to aquatic life.

H410 : Very toxic to aquatic life with long lasting effects.

EUH066 : Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Note T : This substance may be marketed in a form which does not

have the physical hazards as indicated by the classification in the entry in Part 3. If the results of the relevant method or methods in accordance with Part 2 of Annex I of this

Regulation show that the specific form of substance marketed does not exhibit this physical property or these physical hazards, the substance shall be classified in accordance with the result or results of this test or these tests. Relevant information, including reference to the relevant test method(s)

shall be included in the safety data sheet.

Note U (table 3.1) : When put on the market gases have to be classified as

"Gases under pressure", in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case. The following codes are assigned: Press. Gas (Comp.) Press. Gas (Liq.) Press. Gas (Ref. Liq.) Press. Gas (Diss.) Aerosols shall not be classified as gases under pressure (See Annex I, Part

2, Section 2.3.2.1, Note 2).

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

FR VLE : France. Occupational Exposure Limits

2000/39/EC / TWA : Limit Value - eight hours 2000/39/EC / STEL : Short term exposure limit 2019/1831/EU / TWA : Limit Value - eight hours



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2019/1831/EU / STEL : Short term exposure limit FR VLE / VME : Time Weighted Average FR VLE / VLCT (VLE) : Short Term Exposure Limit

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 Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA -International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO -International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO -International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration: NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development: OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID -Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; 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:

Aerosol 1 H222, H229 Based on product data or assessment

Eye Irrit. 2 H319 Calculation method STOT SE 3 H336 Calculation method Aquatic Chronic 2 H411 Calculation method

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



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