

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

1.1 Product identifier

Product name : OKS 2581

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

Use of the Substance/Mixture : Corrosion inhibitor

Recommended restrictions on use : Restricted to professional users.

1.3 Details of the supplier of the safety data sheet

Company : 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

National contact :

1.4 Emergency telephone number

Emergency telephone number : 06 68593726 Roma - CAV "Osp. Pediatrico Bambino Gesu" Dip. Emergenza e Accettazione DEA
800183459 Foggia - Az. Osp. Univ. Foggia
081-5453333 Napoli - Az. Osp. "A. Cardarelli"
06-49978000 Roma - CAV Policlinico "Umberto I"
06-3054343 Roma - CAV Policlinico "A. Gemelli"
055-7947819 Firenze - Az. Osp. "Careggi" U.O. Tossicologia Medica
0382-24444 Pavia - CAV Centro Nazionale di Informazione Tossicologica
02-66101029 Milano - Osp. Niguarda Ca' Granda
800883300 Bergamo - Az. Osp. Papa Giovanni XXII
800011858 Verona - Az. Osp. Integrata Verona

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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms	:	  
Signal word	:	Danger
Hazard statements	:	H222 Extremely flammable aerosol. H229 Pressurised container: May burst if heated. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H411 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. 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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

Hazardous components which must be listed on the label:

butanone

acetone

n-butyl acetate

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 : Contains solvents, lacquer base, metal and metal oxide powder.
Corrosion inhibitor

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	Flam. Liq.2; H225		>= 10 - < 20

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version 4.1 Revision Date: 01.03.2024 Date of last issue: 15.09.2023 Print Date: 04.03.2024
Date of first issue: 15.09.2023

	200-662-2 606-001-00-8 01-2119471330-49-XXXX	Eye Irrit.2; H319 STOT SE3; H336; EUH066		
cyclopentanone	120-92-3 204-435-9 606-025-00-9 01-2119495595-21-XXXX	Flam. Liq.3; H226 Skin Irrit.2; H315 Eye Irrit.2; H319		$\geq 1 - < 10$
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	$\geq 2,5 - < 10$
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		$\geq 1 - < 10$
Substances with a workplace 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)	$\geq 30 - < 50$

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

respiration.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off immediately with soap and plenty of water.
Get medical attention immediately if irritation develops and persists.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids,
for at least 10 minutes.
Seek medical advice.

If swallowed : Move the victim to fresh air.
If 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
Allergic appearance

Risks : Central nervous system depression
Causes skin irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : ABC powder

Unsuitable extinguishing media : High volume water jet

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

5.2 Special hazards arising from the substance or mixture

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
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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Do not 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.
Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Smoking, eating and drinking should be prohibited in the application area.
Wash hands and face before breaks and immediately after handling the product.
Do not get in eyes or mouth or on skin.
Do not get on skin or clothing.
Do not ingest.
Do not 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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version 4.1 Revision Date: 01.03.2024 Date of last issue: 15.09.2023 Date of first issue: 15.09.2023 Print Date: 04.03.2024

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	TWALimit Value - eight hours	200 ppm 600 mg/m ³	2000/39/EC (2000-06-16)	
		Further information: Indicative			
		STELShort term exposure limit	300 ppm 900 mg/m ³	2000/39/EC (2000-06-16)	
		Further information: Indicative			
		TWA8 hour exposure limit	200 ppm 600 mg/m ³	IT OEL (2004-03-10)	
		STELShort term exposure limit	300 ppm 900 mg/m ³	IT OEL (2004-03-10)	
		TWA	200 ppm	ACGIH (2013-03-01)	
dimethyl ether	115-10-6	STEL	300 ppm	ACGIH (2013-03-01)	
		TWALimit Value - eight hours	1.000 ppm 1.920 mg/m ³	2000/39/EC (2000-06-16)	
		Further information: Indicative			
		TWA8 hour exposure limit	1.000 ppm 1.920 mg/m ³	IT OEL (2020-05-19)	
		acetone	67-64-1	TWALimit Value - eight hours	500 ppm 1.210 mg/m ³
Further information: Indicative					
TWA8 hour exposure limit	500 ppm 1.210 mg/m ³			IT OEL (2008-02-26)	
TWA	250 ppm			ACGIH (2021-01-01)	
STEL	500 ppm			ACGIH (2021-01-01)	
n-butyl acetate	123-86-4			STELShort term exposure limit	150 ppm 723 mg/m ³
		Further information: Indicative			
		TWALimit Value - eight hours	50 ppm 241 mg/m ³	2019/1831/EU (2019-10-31)	
		Further information: Indicative			
		STELShort term exposure limit	150 ppm 723 mg/m ³	IT OEL (2021-05-18)	
		TWA8 hour exposure limit	50 ppm 241 mg/m ³	IT OEL (2021-05-18)	
		TWA	50 ppm	ACGIH	

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version 4.1 Revision Date: 01.03.2024 Date of last issue: 15.09.2023 Print Date: 04.03.2024
Date of first issue: 15.09.2023

				(2017-03-01)
		STEL	150 ppm	ACGIH (2017-03-01)

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
butanone	78-93-3	methyl ethyl ketone: 2 mg/l (Urine)	End of shift (As soon as possible after exposure ceases)	ACGIH BEI (2014-03-01)
acetone	67-64-1	Acetone: 25 mg/l (Urine)	End of shift (As soon as possible after exposure ceases)	ACGIH BEI (2017-03-01)

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

Substance name	End Use	Exposure routes	Potential health effects	Value
butanone	Workers	Inhalation	Long-term systemic effects	600 mg/m ³
	Workers	Skin contact	Long-term systemic effects	1161 mg/kg
dimethyl ether	Workers	Inhalation	Long-term exposure	1894 mg/m ³
acetone	Workers	Inhalation	Long-term systemic effects	1210 mg/m ³
	Workers	Skin contact	Long-term systemic effects	186 mg/kg
cyclopentanone	Workers	Inhalation	Long-term systemic effects	61 mg/m ³
	Workers	Skin contact	Long-term systemic effects	7 mg/kg
zinc powder — zinc dust (stabilised)	Workers	Inhalation	Long-term systemic effects	5 mg/m ³
	Workers	Skin contact	Long-term systemic effects	83 mg/kg
n-butyl acetate	Workers	Inhalation	Long-term systemic effects	300 mg/m ³
	Workers	Inhalation	Acute systemic effects	600 mg/m ³
	Workers	Dermal	Long-term local effects	11 mg/cm ²

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version 4.1 Revision Date: 01.03.2024 Date of last issue: 15.09.2023 Print Date: 04.03.2024
Date of first issue: 15.09.2023

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	235,6 mg/kg
	Marine water	0,0061 mg/l
	Marine sediment	121 mg/kg
	Microbiological Activity in Sewage Treatment Systems	0,052 mg/l
	Soil	106,8 mg/kg
n-butyl acetate	Fresh water	0,18 mg/l
	Marine water	0,018 mg/l
	Microbiological Activity in Sewage Treatment Systems	35,6 mg/l
	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 : 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.
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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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.

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

Boiling point/boiling range : No data available

Flammability (solid, gas) : Extremely flammable aerosol.

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

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

Flash point : -42 °C
Method: Abel-Pensky

Auto-ignition temperature : 350 °C (1.013 hPa)

Decomposition temperature : No data available

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

Viscosity
Viscosity, dynamic : No data available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

Solubility(ies)
Water solubility : insoluble

Solubility in other solvents : No data available

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

Vapour pressure : 3.200 hPa (20 °C)

Relative density : 0,86 (20 °C)
Reference substance: Water
The value is calculated

Density : 0,86 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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

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, Respiratory disorders, Dizziness,
Drowsiness, Asthma, Shortness of breath, Vomiting, Fatigue,
Vertigo, Central nervous system depression

Acute dermal toxicity : Symptoms: Redness, Local irritation

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:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

cyclopentanone:

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

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

Skin corrosion/irritation

Product:

Result : Skin irritation

Remarks : Irritating to skin.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

Serious eye damage/eye irritation

Product:

Remarks : Irritating to eyes.

Components:

butanone:

Species : Rabbit
Assessment : Irritating to eyes.
Method : OECD Test Guideline 405
Result : Irritating to eyes.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

Respiratory or skin sensitisation

Product:

Remarks : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Components:

butanone:

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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.

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.

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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 -
Assessment : No evidence of carcinogenicity in animal studies.

n-butyl acetate:

Carcinogenicity -
Assessment : Not classifiable as a human carcinogen.

dimethyl ether:

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

butanone:

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

zinc powder — zinc dust (stabilised):

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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 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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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 (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. Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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
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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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

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: 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).

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version 4.1	Revision Date: 01.03.2024	Date of last issue: 15.09.2023 Date of first issue: 15.09.2023	Print Date: 04.03.2024
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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-octanol/water : log Pow: 2,3 (25 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: yes

dimethyl ether:

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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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.

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)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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 (zinc powder - zinc dust (stabilized))
IATA	:	Aerosols, flammable

14.3 Transport hazard class(es)

ADN	:	2
ADR	:	2
RID	:	2
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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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 aircraft) : 203
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

IATA (Passenger)

Packing instruction (passenger aircraft) : 203
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

zinc powder — zinc dust (stabilised)
(Number on list 75)
Chromium (VI) compounds (Number
on list 75, 72, 28)
nickel (Number on list 75, 27)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). (EU SVHC) : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

Regulation (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 (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals (EU PIC) : Not applicable

Regulation (EU) 2019/1148 on the marketing and use of explosives precursors : Listed

This product is regulated by Regulation (EU) 2019/1148: acetone (ANNEX II)
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 Parliament and of the Council on the control of major-accident hazards involving dangerous substances. P3a FLAMMABLE AEROSOLS

E2 ENVIRONMENTAL HAZARDS

P5c

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Volatile organic compounds (VOC) content: 83,86 %

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

Other regulations:

Legislative Decree April 9, 2008, 81 (Implementation of Article 1 of the Law of 3 August 2007, n. 123, concerning the protection of health and safety in the workplace.) and subsequent amendments

Legislative Decree April 3, 2006, n. 152, (Environmental standards) and subsequent amendments

Legislative Decree February 6, 2009, 21 (Regulations for the execution of the provisions laid down in Regulation (EC) no. 648/2004 on detergents)

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment

This information is not available.

SECTION 16: Other information

Full text of H-Statements

EUH066	:	Repeated exposure may cause skin dryness or cracking.
H220	:	Extremely flammable gas.
H225	:	Highly flammable liquid and vapour.
H226	:	Flammable liquid and vapour.
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 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
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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

(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

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)

IT OEL : Italy. List of indicative limit values for professional exposure to chemical agents.

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

ACGIH / TWA : 8-hour, time-weighted average

ACGIH / STEL : Short-term exposure limit

IT OEL / TWA : 8 hour exposure limit

IT OEL / STEL : 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; TECl - Thailand Existing Chemicals

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 - IT
(Commission Regulation (EU) 2020/878)



OKS 2581

Version	Revision Date:	Date of last issue: 15.09.2023	Print Date:
4.1	01.03.2024	Date of first issue: 15.09.2023	04.03.2024

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:

Aerosol 1	H222, H229
Skin Irrit. 2	H315
Eye Irrit. 2	H319
STOT SE 3	H336
Aquatic Chronic 2	H411

Classification procedure:

Based on product data or assessment
Based on product data or assessment
Calculation method
Calculation method
Calculation method

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