

**Safety data sheet**  
**according to 1907/2006/EC, Article 31**

Printing date 23.11.2021

Version number 38 (replaces version 37)

Revision: 23.11.2021

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

- **1.1 Product identifier**
- **Molecular formula:** C H<sub>4</sub> O
- **Structure formula:** C H<sub>3</sub> - O H
- **Trade name:** Methanol
- **SDS number:** CH0005
- **CAS Number:**  
67-56-1
- **EC number:**  
200-659-6
- **Index number:**  
603-001-00-X
- **Registration number** 01-2119433307-44
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
Only for the use of professionals users
- **Life cycle stages**  
IS Use at industrial Sites  
M Manufacture  
F Formulation or re-packing  
PW Widespread use by professional workers
- **Sector of Use**  
SU9 Manufacture of fine chemicals  
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)  
SU24 Scientific research and development
- **Product category**  
PC21 Laboratory chemicals  
PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents  
PC29 Pharmaceuticals  
PC40 Extraction agents
- **Process category**  
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities  
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities  
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)  
PROC4 Chemical production where opportunity for exposure arises  
PROC15 Use as laboratory reagent  
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.  
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions  
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition  
PROC5 Mixing or blending in batch processes  
PROC10 Roller application or brushing  
PROC11 Non industrial spraying  
PROC13 Treatment of articles by dipping and pouring
- **Environmental release category**  
ERC1 Manufacture of the substance  
ERC2 Formulation into mixture  
ERC3 Formulation into solid matrix  
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)  
ERC5 Use at industrial site leading to inclusion into/onto article  
ERC6a Use of intermediate  
ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)  
ERC7 Use of functional fluid at industrial site  
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)  
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

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- **Application of the substance / the mixture** Chemicals products for laboratory

- **1.3 Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

CARLO ERBA REAGENTS

Chaussée du Vexin

Parc d'Affaires des Portes - BP616

27106 VAL DE REUIL Cedex

Téléphone: +33 (0)2 32 09 20 00

Télécopie: +33 (0)2 32 09 20 20

- **Further information obtainable from:**

Q.A / Normative

email: MSDS\_CER-SDS@cer.dgroup.it

- **1.4 Emergency telephone number:**

France (ORFILA 24h/24) - Tel : +33 (0)1 45 42 59 59

Ireland - Tel : 00 353 1 8092568 - 00 353 1 8379964 (24h/24)

EU Tel : 112

## SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**

- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.



GHS06 skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 health hazard

STOT SE 1 H370 Causes damage to the central nervous system and the visual organs. Route of exposure: Inhalation.

- **2.2 Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms**



GHS02



GHS06



GHS08

- **Signal word** Danger

- **Hazard statements**

H225

Highly flammable liquid and vapour.

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H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.

H370 Causes damage to the central nervous system and the visual organs. Route of exposure: Inhalation.

**· Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P241 Use explosion-proof [electrical/ventilating/lighting] equipment.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

**· 2.3 Other hazards**

**· Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

**· 3.1 Substances**

**· CAS No. Description**

CAS: 67-56-1 Methanol

**· Identification number(s)**

· **EC number:** 200-659-6

· **Index number:** 603-001-00-X

**· Specific concentration limits**

STOT SE 1; H370:  $C \geq 10 \%$

STOT SE 2; H371:  $3 \% \leq C < 10 \%$

**SECTION 4: First aid measures**

**· 4.1 Description of first aid measures**

**· General information:**

Remove immediately any clothing soiled by the product and wash with plenty of water. The rescuer has to be equipped with individual protection

Remove breathing equipment only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

**· After inhalation:**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

**· After skin contact:**

Immediately wash with water and soap and rinse thoroughly. Wash contaminated clothing before reuse.

Generally the product does not irritate the skin.

If skin irritation continues, consult a doctor.

**· After eye contact:**

Rinse opened eye for several minutes under running water. Then consult a doctor.

Seek immediate medical advice.

**· After swallowing:**

Induce vomiting and call for medical help.

Call for a doctor immediately.

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- **Information for doctor:** Show the doctor this Material Safety Data Sheet.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** CO<sub>2</sub> or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet.
- **5.2 Special hazards arising from the substance or mixture**  
Can form explosive gas-air mixtures.  
Carbon monoxide and carbon dioxide
- **5.3 Advice for firefighters**
- **Protective equipment:**  
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
In closed rooms wear a self contained breathing apparatus.  
Do not inhale gases in case of fire or combustion.
- **Additional information** Keep receptacles cool with water spray.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Keep away any ignition source.  
Wear protective equipment. Keep unprotected persons away.  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.  
Ensure adequate ventilation
- **6.2 Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to penetrate the ground/soil.  
Dilute with plenty of water after collecting the liquid.  
Prevent seepage into sewage system, workpits and cellars.  
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**  
Collect the liquid with vacuum in a suitable container and absorb the remainder with a porous material (diatomite, acid binders, universal binders, etc).  
Ensure adequate ventilation.  
Ventilate area and wash spill site after material pickup is complete.  
Dispose contaminated material as waste according to item 13.
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Store in cool, dry place in tightly closed receptacles.  
Ensure good ventilation/exhaustion at the workplace.  
Only handle and refill product in closed systems or under local exhaust.  
Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.

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Pneumatic conveyance only with nitrogen or other inert gases.  
Open and handle receptacle with care.

· **Information about fire - and explosion protection:**



Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.  
Keep respiratory protective device available.

· **7.2 Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:**

Suitable material for receptacles and pipes: steel or stainless steel.

Suitable material for receptacles and pipes: Stainless steel.

Suitable material for receptacles : glass bottles.

Store in a cool location.

Use only receptacles specifically permitted for this substance/product.

· **Information about storage in one common storage facility:** Store away from oxidizing agents.

· **Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

**CAS: 67-56-1 Methanol**

<b>IOELV</b>	Long-term value: 260 mg/m <sup>3</sup> , 200 ppm
	Skin

· **DNELs**

<i>Dermal</i>	DNEL (workers-acute systemic)	20 mg/kg (bw/day)
	DNEL (workers-systemic chronic effects)	20 mg/kg (bw/day)
<i>Inhalative</i>	DNEL (workers-local effects Acute)	260 mg/m <sup>3</sup>
	DNEL (workers-acute systemic)	130 mg/m <sup>3</sup>
	DNEL (workers-local acute effects)	130 mg/m <sup>3</sup>
	DNEL (workers-local chronic effects)	130 mg/m <sup>3</sup>
	DNEL (workers-systemic chronic effects)	130 mg/m <sup>3</sup>

· **PNECs**

PNEC (Fresh water)	20.8 mg/l
PNEC (Intermittent rejection)	1,540 mg/l
PNEC (Freshwater sediment)	77 mg/kg
PNEC (Marine water)	2.08 mg/l
PNEC (Seawater sediment)	7.7 mg/l
PNEC (STP)	100 mg/l
PNEC (Soil)	100 mg/kg (dw)

· **Additional information:** The lists valid during the making were used as basis.

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- **8.2 Exposure controls**
- **Appropriate engineering controls**  
Safety shower and eye bath. Mechanical exhaust required.  
No further data; see item 7.
- **Individual protection measures, such as personal protective equipment**
- **General protective and hygienic measures:**  
The usual precautionary measures are to be adhered to when handling chemicals.  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Store protective clothing separately.  
Avoid contact with the eyes and skin.  
Clean skin thoroughly immediately after handling the product.
- **Respiratory protection:**  
In case of making powders use an aqualung with approved filter.  
Filter AX



In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Suitable respiratory protective device recommended in case of leakages or handling in open devices.  
The selected respiratory protection must comply with standard EN 136/140/143/145/149.

- **Hand protection**  
The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation



Protective gloves

Rubber gloves  
Only use chemical-protective gloves with CE-labelling of category III.

- **Material of gloves**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.  
Fluorocarbon rubber (Viton)  
Butyl rubber, BR  
Chloroprene rubber, CR
- **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact gloves made of the following materials are suitable:**  
The penetration time has to be at least 480 minutes  
Butyl rubber, BR  
Recommended thickness of the material:  $\geq 0.6$  mm
- **As protection from splashes gloves made of the following materials are suitable:**  
Nitrile rubber, NBR  
Recommended thickness of the material:  $\geq 0.16$  mm
- **Eye/face protection**



Tightly sealed goggles

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- **Environmental exposure controls**  
In case of unintended release of the product: See section 6 of the Safety Data Sheet.
- **Risk management measures**  
Observe the general safety regulations when handling chemicals.  
Keep good industrial hygiene.

### SECTION 9: Physical and chemical properties

#### · 9.1 Information on basic physical and chemical properties

- **Molecular weight** 32 g
- **Physical state** Fluid
- **Colour:** Colourless
- **Odour:** Alcohol-like
- **Odour threshold:** Not determined.
- **Melting point/freezing point:** -98 °C
- **Boiling point or initial boiling point and boiling range** 64.7 °C
- **Flammability** Not applicable.
- **Lower and upper explosion limit**
- **Lower:** 5.5 Vol %
- **Upper:** 44 Vol %
- **Flash point:** 9.7 °C
- **Auto-ignition temperature:** Not determined.
- **Decomposition temperature:** Not determined.
- **pH** Not determined.
- **Viscosity:**
- **Kinematic viscosity** Not determined.
- **Dynamic at 20 °C:** 0.59 mPas
- **Solubility**
- **water:** Fully miscible.
- **Partition coefficient n-octanol/water (log value)** -0.76955
- **Vapour pressure at 20 °C:** 128 hPa
- **Vapour pressure (2) at 50 °C:** 552 hPa
- **Density and/or relative density**
- **Density at 20 °C:** 0.79 g/cm<sup>3</sup>
- **Relative density** Not determined.
- **Vapour density** 1.1 g/cm<sup>3</sup>

#### · 9.2 Other information

- **Appearance:**
- **Form:** Fluid
- **Important information on protection of health and environment, and on safety.**
- **Ignition temperature:** 455 °C
- **Explosive properties:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
- **Change in condition**
- **Evaporation rate** Not determined.

#### · Information with regard to physical hazard classes

- **Explosives** Void
- **Flammable gases** Void
- **Aerosols** Void
- **Oxidising gases** Void

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- |  |                                     |
|--|-------------------------------------|
| · <b>Gases under pressure</b>  | Void                                |
| · <b>Flammable liquids</b>   | Highly flammable liquid and vapour. |
| · <b>Flammable solids</b>  | Void                                |
| · <b>Self-reactive substances and mixtures</b>                                     | Void                                |
| · <b>Pyrophoric liquids</b>  | Void                                |
| · <b>Pyrophoric solids</b>   | Void                                |
| · <b>Self-heating substances and mixtures</b>                                      | Void                                |
| · <b>Substances and mixtures, which emit flammable gases in contact with water</b> | Void                                |
| · <b>Oxidising liquids</b>   | Void                                |
| · <b>Oxidising solids</b>  | Void                                |
| · <b>Organic peroxides</b>   | Void                                |
| · <b>Corrosive to metals</b>   | Void                                |
| · <b>Desensitised explosives</b>   | Void                                |

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** See 10.3
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**  
Can react violently with oxygen rich (oxidizing) material. Danger of Explosion.  
Reacts with strong oxidising agents.
- **10.4 Conditions to avoid**  
Direct heat, high temperature.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- **10.5 Incompatible materials:**  
hydrogen peroxide.  
Strong Oxidant.
- **10.6 Hazardous decomposition products:**  
Formaldehyde  
Carbon monoxide, Carbon dioxide.

### SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Toxic if swallowed, in contact with skin or if inhaled.

· **LD/LC50 values relevant for classification:**

Oral	LD50	143 mg/kg (ATE (RTECS®)) >1,187 mg/kg (rat)
Dermal	LD50	15,800 mg/kg (rabbit)
Inhalative	LC50/4 h	83.9 mg/L (rat)

- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.

· **Ingestion:**

May be fatal if swallowed.  
Toxic if swallowed.

· **Inhalation:**

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

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- *Toxic if inhaled.*
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**  
Causes damage to the central nervous system and the visual organs. Route of exposure: Inhalation.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **Other information (about experimental toxicology):** No further relevant information available.
- **Additional toxicological information:** Progressive loss of the sight.
- **11.2 Information on other hazards**
- **Endocrine disrupting properties** Substance is not listed.

## SECTION 12: Ecological information

### · 12.1 Toxicity

#### · Aquatic toxicity:

NOEC	7,900 mg/L (fishes) (fresh water)
EC50/48h	>10,000 mg/l (Daphnia)
EC50	22,000 mg/L (algae) (96h)
LC50	15,400 mg/l (fishes) (96h)

- **12.2 Persistence and degradability** No further relevant information available.
- **Method**
- **Ecological information** The product is easily biodegradable.
- **12.3 Bioaccumulative potential** Does not accumulate in organisms
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**  
The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.

## SECTION 13: Disposal considerations

### · 13.1 Waste treatment methods

#### · Recommendation

Must not be disposed together with household garbage. Do not allow product to reach sewage system. Reutilise if possible or contact a waste processors for recycling or safe disposal.

#### · Waste disposal key:

The European Union does not establish uniform rules for the disposal of chemical waste, which are special waste. Their treatment and elimination of the domestic legislation of each country. So, in each case, you should contact the relevant authorities, or those companies legally authorized for elimination of waste.

2014/955/UE: Council Decision of 18 December 2014 amending the list of wastes contained in Decision 2000/532/EC.

Directive 2008/98/EC of the european parliament and of the council of 18 November 2008, in ist latest valid

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version.

**· European waste catalogue**

HP3 Flammable

HP5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

HP6 Acute Toxicity

**· Uncleaned packaging:**

The containers and packaging materials contaminated with dangerous substances or preparations, have the same treatment of products.

Directive 94/62/EC of the European Parliament and the Council of 20 December 1994 on packaging and packaging waste.

**· Recommendation:**

Disposal must be made according to official regulations.

Packagings that may not be cleansed are to be disposed of in the same manner as the product.

### SECTION 14: Transport information

**· 14.1 UN number or ID number**
**· ADR/RID, IMDG, IATA**

UN1230

**· 14.2 UN proper shipping name**
**· ADR/RID**

1230 METHANOL

**· IMDG**

METHANOL

**· IATA**

Methanol

**· 14.3 Transport hazard class(es)**
**· ADR/RID**

**· Class**

3 (FT1) Flammable liquids.

**· Label**

3+6.1

**· IMDG**

**· Class**

3 Flammable liquids.

**· Label**

3/6.1

**· IATA**

**· Class**

3 Flammable liquids.

**· Label**

3 (6.1)

**· 14.4 Packing group**
**· ADR/RID, IMDG, IATA**

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**· 14.5 Environmental hazards:**· **Marine pollutant:** No**· 14.6 Special precautions for user**· **Hazard identification number (Kemler code):** 336· **EMS Number:** F-E,S-D· **Stowage Category** B· **Stowage Code** SW2 Clear of living quarters.**· 14.7 Maritime transport in bulk according to IMO instruments**

Not applicable.

**· Transport/Additional information:****· ADR/RID**· **Excepted quantities (EQ):** E2· **Limited quantities (LQ)** 1L· **Excepted quantities (EQ)** Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· **Transport category** 2· **Tunnel restriction code** D/E**· IMDG**· **Limited quantities (LQ)** 1L· **Excepted quantities (EQ)** Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":**

UN 1230 METHANOL, 3 (6.1), II

### SECTION 15: Regulatory information

**· 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Directive 2012/18/EU**· **Named dangerous substances - ANNEX I** Substance is listed.· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 500 t· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 5,000 t· **REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)** Substance is not listed.· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)** Substance is not listed.· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40, 69· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

Substance is not listed.

· **National regulations:**· **Technical instructions (air):**

Class	Share in %
I	50-100

· **Waterhazard class:** Water hazard class 2 (Assessment by list): hazardous for water.· **Other regulations, limitations and prohibitive regulations**· **Substances of very high concern (SVHC) according to REACH, Article 57** Substance is not listed.

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· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

**SECTION 16: Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Training hints** Deploy only trained chemical workers.

· **Department issuing SDS:** Q.A./Normative

· **Date of previous version:** 12.01.2021

· **Version number of previous version:** 37

· **Abbreviations and acronyms:**

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*ICAO: International Civil Aviation Organisation*

*RCR : Risk Characterisation Ratio*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*IATA: International Air Transport Association*

*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*DNEL: Derived No-Effect Level (REACH)*

*PNEC: Predicted No-Effect Concentration (REACH)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*SVHC: Substances of Very High Concern*

*vPvB: very Persistent and very Bioaccumulative*

*IMO : International Maritime Organization*

*Flam. Liq. 2: Flammable liquids – Category 2*

*Acute Tox. 3: Acute toxicity – Category 3*

*STOT SE 1: Specific target organ toxicity (single exposure) – Category 1*

· **Sources**

*Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH, in latest valid version.*

*Regulation (EC) N° 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.*

*Globally Harmonized System, GHS*

*ADR, IMDG, IATA*

*PubChem : an open chemistry database at the National Institutes of Health (NIH)*

*ECHA : European Chemicals Agency*

*GESTIS : Information system on hazardous substances of the German Social Accident Insurance*

· **\* Data compared to the previous version altered. .**

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### Annex: Exposure scenario 1

- **Short title of the exposure scenario** Chemicals products for laboratory
- **Sector of Use** Industrial use.
- **Process category** PROC15 Use as laboratory reagent
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use** Customary application according to section 1.
- **Duration and frequency** 5 workdays/week.
- **Worker hrs** (full working shift).
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the preparation.
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Used amount per time or activity** According to directions for use.
- **Other operational conditions** Observe the general safety regulations when handling chemicals.
- **Other operational conditions affecting environmental exposure** No special measures required.
- **Other operational conditions affecting worker exposure**  
Avoid contact with the skin.  
Do not breathe gas/vapour/aerosol.  
Take precautionary measures against static discharge.  
Keep away from sources of ignition - No smoking.  
Respiratory protection is required in work areas with inadequate ventilation and during spraying application.  
Indoor application.  
Outdoor application.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**  
Keep good industrial hygiene.  
Ensure that activities are executed by specialists or authorised personnel only.  
Ensure good ventilation. This can be achieved by using a local exhaust or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.  
Provide sufficient washing facilities.  
Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures**  
Ensure good ventilation/exhaustion at the workplace.  
Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.
- **Personal protective measures**  
Avoid contact with the skin.  
Tightly sealed goggles  
The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation  
Protective gloves  
Rubber gloves  
Only use chemical-protective gloves with CE-labelling of category III.  
The usual precautionary measures are to be adhered to when handling chemicals.  
Detailed measures on hand protection according to Safety Data Sheet, section 8.  
In case of making powders use an aqualung with approved filter.  
Filter AX  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

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*Suitable respiratory protective device recommended in case of leakages or handling in open devices.*

*The selected respiratory protection must comply with standard EN 136/140/143/145/149.*

· **Environmental protection measures**

· **Notes** *In case of unintended release of the product: See section 6 of the Safety Data Sheet.*

· **Disposal measures** *Ensure that waste is collected and contained.*

· **Disposal procedures**

*Must not be disposed together with household garbage. Do not allow product to reach sewage system.*

· **Waste type** *Partially emptied and uncleaned packaging*

· **Exposure estimation**

· **Worker (dermal)** *RCR 0.002*

· **Worker (inhalation)** *RCR 0.051*

· **Consumer** *Not relevant for this Exposure Scenario.*

· **Guidance for downstream users**

*Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.*

*Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.*

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**Annex: Exposure scenario 2**

- **Short title of the exposure scenario** Substance manufacturing
- **Sector of Use** Industrial use.
- **Process category**
  - PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
  - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
  - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
  - PROC4 Chemical production where opportunity for exposure arises
  - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
  - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- **Environmental release category**
  - ERC1 Manufacture of the substance
  - ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
  - ERC6a Use of intermediate
  - ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use** Customary application according to section 1.
- **Duration and frequency** 5 workdays/week.
- **Worker** 8hrs (full working shift).
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the preparation.
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions** Observe the general safety regulations when handling chemicals.
- **Other operational conditions affecting environmental exposure** No special measures required.
- **Other operational conditions affecting worker exposure**
  - Avoid contact with the skin.
  - Do not breathe gas/vapour/aerosol.
  - Take precautionary measures against static discharge.
  - Keep away from sources of ignition - No smoking.
  - Respiratory protection is required in work areas with inadequate ventilation and during spraying application.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**
  - Keep good industrial hygiene.
  - Ensure that activities are executed by specialists or authorised personnel only.
  - Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.
  - Provide sufficient washing facilities.
  - Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures**
  - Ensure good ventilation/exhaustion at the workplace.
  - Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.
- **Personal protective measures**
  - Avoid contact with the skin.
  - The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.
  - Selection of the glove material on consideration of the penetration times, rates of diffusion and the

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*degradation*

*Protective gloves*

*Rubber gloves*

*Only use chemical-protective gloves with CE-labelling of category III.*

*Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.*

*Tightly sealed goggles*

*The usual precautionary measures are to be adhered to when handling chemicals.*

*Detailed measures on hand protection according to Safety Data Sheet, section 8.*

*In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.*

*Suitable respiratory protective device recommended in case of leakages or handling in open devices.*

*The selected respiratory protection must comply with standard EN 136/140/143/145/149.*

*Protective work clothing*

· **Environmental protection measures**

· **Notes** *In case of unintended release of the product: See section 6 of the Safety Data Sheet.*

· **Disposal measures** *Ensure that waste is collected and contained.*

· **Disposal procedures**

*Must not be disposed together with household garbage. Do not allow product to reach sewage system.*

· **Waste type** *Partially emptied and uncleaned packaging*

· **Exposure estimation**

· **Worker (dermal)** RCR 0.068

· **Worker (inhalation)** RCR 0.257

· **Consumer** *Not relevant for this Exposure Scenario.*

· **Guidance for downstream users**

*Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.*

*Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.*

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### Annex: Exposure scenario 3

- **Short title of the exposure scenario** Formulation or re-packing
- **Sector of Use** Industrial use.
- **Process category**
  - PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
  - PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
  - PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
  - PROC4 Chemical production where opportunity for exposure arises
  - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
  - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
  - PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
- **Environmental release category** ERC2 Formulation into mixture
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use** Customary application according to section 1.
- **Duration and frequency** 5 workdays/week.
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the preparation.
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions** Observe the general safety regulations when handling chemicals.
- **Other operational conditions affecting environmental exposure**  
Observe section 6 of the Safety Data Sheet (Accidental release measures).
- **Other operational conditions affecting worker exposure**  
Avoid contact with the skin.  
Do not breathe gas/vapour/aerosol.  
Take precautionary measures against static discharge.  
Keep away from sources of ignition - No smoking.  
Respiratory protection is required in work areas with inadequate ventilation and during spraying application.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**  
Keep good industrial hygiene.  
Ensure that activities are executed by specialists or authorised personnel only.  
Provide sufficient washing facilities.  
Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures** Ensure good ventilation/exhaustion at the workplace.
- **Personal protective measures**  
The usual precautionary measures are to be adhered to when handling chemicals.  
Avoid contact with the skin.  
Detailed measures on hand protection according to Safety Data Sheet, section 8.  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.  
Suitable respiratory protective device recommended in case of leakages or handling in open devices.  
The selected respiratory protection must comply with standard EN 136/140/143/145/149.  
The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation  
Protective gloves

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*Rubber gloves**Only use chemical-protective gloves with CE-labelling of category III.**Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.**Protective work clothing**Tightly sealed goggles***· Environmental protection measures****· Notes** *In case of unintended release of the product: See section 6 of the Safety Data Sheet.***· Disposal measures** *Ensure that waste is collected and contained.***· Disposal procedures***Must not be disposed together with household garbage. Do not allow product to reach sewage system.***· Waste type** *Partially emptied and uncleaned packaging***· Exposure estimation****· Worker (dermal)** RCR 0.068**· Worker (inhalation)** RCR 0.257**· Guidance for downstream users***Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.**Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.*

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