Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

Printing date 27.04.2026 *Version number 6 (replaces version 5)* *Revision: 27.04.2026*

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

· **1.1 Product identifier**
· **Trade name: Sulfuric acid in solution at 40-45%**
· **SDS number:** CH5106
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
For professional users only
No further relevant information available.
· **Life cycle stages**
F Formulation or re-packing
IS Use at industrial Sites
· **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:**
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**



GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**



GHS05

· **Signal word** Danger

· **Hazard-determining components of labelling:**
sulfuric acid
· **Hazard statements**
H314 Causes severe skin burns and eye damage.
· **Precautionary statements**
P280 Wear protective gloves / eye protection / face protection.

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P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
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.
P310 Immediately call a POISON CENTER/doctor.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

· **Additional information:**
Product contains: Restricted explosives precursors. Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 5 (1) and (3).
· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable
· **vPvB:** Not applicable
· **Determination of endocrine-disrupting properties** Not applicable

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:**
Mixture made by the following substances:

CAS: 7732-18-5 EINECS: 231-791-2 RTECS: ZC 0110000	water, distilled, conductivity or of similarpurity	≤100%

· **Dangerous components:**

CAS: 7664-93-9 EINECS: 231-639-5 Index number: 016-020-00-8 Reg.nr.: 01-2119458838-20	sulfuric acid Skin Corr. 1A, H314; Eye Dam. 1, H318 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 15 % Skin Irrit. 2; H315: 5 % ≤ C < 15 % Eye Dam. 1; H318: C ≥ 15 % Eye Irrit. 2; H319: 5 % ≤ C < 15 %	40-<45%

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
· **After inhalation:** 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.
Seek immediate medical advice.
If skin irritation continues, consult a doctor.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Do not induce vomiting; call for medical help immediately.
Call for a doctor immediately.
Rinse out mouth and then drink plenty of water.
· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

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· ***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:*** *Use fire extinguishing methods suitable to surrounding conditions.*
· ***For safety reasons unsuitable extinguishing agents:*** *Water with full jet.*
· ***5.2 Special hazards arising from the substance or mixture*** *Sulfur Oxides (SOx)*
· ***5.3 Advice for firefighters***
· ***Protective equipment:*** *Do not inhale gases in case or 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***
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
· ***6.2 Environmental precautions:***
Do not allow to penetrate the ground/soil.
Dilute with plenty of water after collecting the liquid.
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.
Use neutralising agent.
Dispose contaminated material as waste according to section 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***
Ensure good ventilation/exhaustion at the workplace.
When diluting always pour product into water and not vice versa.
· ***Information about fire - and explosion protection:*** *The product is not flammable.*

· ***7.2 Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and receptacles:***
Provide acid-resistant floor.
Provide floor trough without outlet.
Use only receptacles specifically permitted for this substance/product.
· ***Information about storage in one common storage facility:***
Do not store together with alkalis (caustic solutions).
· ***Further information about storage conditions:*** *None.*
· ***7.3 Specific end use(s)*** *No further relevant information available.*

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*
SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
CAS: 7664-93-9 sulfuric acid	
IOELV	Long-term value: 0.05 mg/m³

· **DNELs**		
CAS: 7664-93-9 sulfuric acid		
Inhalative	DNEL (workers-local effects Acute)	0.1 mg/m3
	DNEL (workers-local chronic effects)	0.05 mg/m3

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

· **8.2 Exposure controls**
· **Appropriate engineering controls** No further data; see section 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
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Do not inhale dust / smoke / mist.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
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
Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.
· **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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **For the permanent contact gloves made of the following materials are suitable:**
The penetration time has to be at least 480 minutes
Fluorocarbon rubber (Viton)
Recommended thickness of the material: ≥ 0.4 mm
· **Eye/face protection**


Face protection

· **Body protection:**
Protective work clothing

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Acid resistant protective clothing
Apron
· **Environmental exposure controls**
In case of unintended release of the product: See section 6 of the Safety Data Sheet.
· **Risk management measures** *Keep good industrial hygiene.*

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **Molecular weight**	
· **Physical state**	*Liquid*
· **Colour:**	*Colourless*
· **Odour:**	*Odourless*
· **Odour threshold:**	*Not determined*
· **Melting point/freezing point:**	*-10 °C*
· **Boiling point or initial boiling point and boiling range**	*295-315 °C (CAS: 7664-93-9 sulfuric acid)*
· **Flammability**	*Not applicable*
· **Lower and upper explosion limit**	
· **Lower:**	*Not determined*
· **Upper:**	*Not determined*
· **Flash point:**	*Not applicable*
· **pH at 20 °C**	*<1*
· **Viscosity:**	
· **Kinematic viscosity**	*Not determined*
· **Dynamic:**	*Not determined*
· **Solubility**	
· **water:**	*Fully miscible.*
· **Partition coefficient n-octanol/water (log value)**	*Not determined*
· **Vapour pressure at 20 °C:**	*>0 hPa (CAS: 7664-93-9 sulfuric acid)*
· **Density and/or relative density**	
· **Density at 20 °C:**	*1.33 g/cm³*
· **Relative density**	*Not determined*
· **Vapour density**	*Not determined*

· **9.2 Other information**	
· **Appearance:**	
· **Form:**	*Fluid*
· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	*Product is not selfigniting.*
· **Explosive properties:**	*Product does not present an explosion hazard.*
· **Solvent separation test:**	
· **Water:**	*57.5 %*
· **Change in condition**	
· **Evaporation rate**	*Not determined*

· **Information with regard to physical hazard classes**	
· **Explosives**	*Void*
· **Flammable gases**	*Void*
· **Aerosols**	*Void*
· **Oxidising gases**	*Void*
· **Gases under pressure**	*Void*
· **Flammable liquids**	*Void*

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· ***Flammable solids***	*Void*
· ***Self-reactive substances and mixtures***	*Void*
· ***Pyrophoric liquids***	*Void*
· ***Pyrophoric solids***	*Void*
· ***Self-heating substances and mixtures***	*Void*
· ***Substances and mixtures, which emit flammable gases in contact with water***	*Void*
· ***Oxidising liquids***	*Void*
· ***Oxidising solids***	*Void*
· ***Organic peroxides***	*Void*
· ***Corrosive to metals***	*Void*
· ***Desensitised explosives***	*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***
Reacts with various metals.
When diluting, always add acid to water, never vice versa.
Reacts violently with water.
Reacts dangerously with alkali (lyes) or amines in bulk.
· ***10.4 Conditions to avoid*** *No further relevant information available.*
· ***10.5 Incompatible materials:*** *Metals*
· ***10.6 Hazardous decomposition products:*** *In case of fire: Sulfur oxides (SOx)*

SECTION 11: Toxicological information

· ***11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008***
· ***Acute toxicity*** *Based on available data, the classification criteria are not met.*

· ***LD/LC50 values relevant for classification:***		
CAS: 7664-93-9 sulfuric acid		
Oral	*LD50*	*2,140 mg/kg (rat)*

· ***Primary irritant effect:***
· ***Skin corrosion/irritation*** *Causes severe skin burns and eye damage.*
· ***Serious eye damage/irritation***
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
Causes serious eye damage.
· ***Inhalation:***
Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
· ***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*** *Based on available data, the classification criteria are not met.*
· ***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.*

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· ***11.2 Information on other hazards***

· ***Endocrine disrupting properties***
None of the ingredients is listed.

SECTION 12: Ecological information

· ***12.1 Toxicity***

· ***Aquatic toxicity:***	
CAS: 7664-93-9 sulfuric acid	
EC50/48h	*>100 mg/l (Daphnia) (OECD 202)*
LC50/96h	*16 mg/l (fishes)*
LC50	*>100 mg/l (algae) (72h)*

· ***12.2 Persistence and degradability*** *No further relevant information available.*
· ***Method***
· ***Ecological information*** *Not available*
· ***12.3 Bioaccumulative potential*** *No further relevant information available.*
· ***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***
· ***Remark:*** *Local effects: may change the environmental pH endangering the aquatic life.*
· ***Additional ecological information:***
· ***General notes:***
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

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 version.

· ***European waste catalogue***	
HP8	*Corrosive*

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· ***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.
Decompose with care.
· ***Recommended cleansing agents:*** *Water, if necessary together with cleansing agents.*

SECTION 14: Transport information

· ***14.1 UN number or ID number***	
· ***ADR/RID, IMDG, IATA***	*UN2796*
· ***14.2 UN proper shipping name***	
· ***ADR/RID***	*2796 SULPHURIC ACID*
· ***IMDG***	*SULPHURIC ACID*
· ***IATA***	*Sulphuric acid*
· ***14.3 Transport hazard class(es)***	
· ***ADR/RID***	



· ***Class***	*8 (C1) Corrosive substances.*
· ***Label***	*8*
· ***IMDG, IATA***	



· ***Class***	*8 Corrosive substances.*
· ***Label***	*8*
· ***14.4 Packing group***	
· ***ADR/RID, IMDG, IATA***	*II*
· ***14.5 Environmental hazards:***	*Not applicable*
· ***14.6 Special precautions for user***	*Warning: Corrosive substances.*
· ***Hazard identification number (Kemler code):***	*80*
· ***EMS Number:***	*F-A,S-B*
· ***Segregation groups***	*(SGG1a) Strong acids*
· ***Stowage Category***	*B*
· ***Segregation Code***	*SG36 Stow "separated from" SGG18-alkalis.* *SG49 Stow "separated from" SGG6-cyanides*
· ***14.7 Maritime transport in bulk according to IMO instruments***	*Not applicable*

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· **Transport/Additional information:**

· **ADR/RID**	
· **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**	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 2796 SULPHURIC ACID, 8, II

SECTION 15: Regulatory information

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

· **SARA Section 355 (extremely hazardous substances)**

CAS: 7664-93-9	sulfuric acid

· **SARA Section 313 (specific toxic chemical listings)**

CAS: 7664-93-9	sulfuric acid

· **Prop 65 - Chemicals known to cause cancer**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **REGULATION (EU) 2019/1021 on persistent organic pollutants (POP)**

None of the ingredients is listed.

· **LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)**

None of the ingredients is listed.

· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **REGULATION (EU) 2019/1148**

· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

CAS: 7664-93-9	sulfuric acid	40-<45%

· **REGULATION (EU) 2024/590 on substances that deplete the ozone layer**

None of the ingredients is listed.

· **National regulations:**

· **Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

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· **Other regulations, limitations and prohibitive regulations**
0.0 g/l
0.00 %

· **Substances of very high concern (SVHC) according to REACH, Article 57**
None of the ingredients is listed.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not 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.

· **Relevant phrases**
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
· **Department issuing SDS:** Q.A./Normative
· **Date of previous version:** 12.09.2022
· **Version number of previous version:** 5
· **Abbreviations and acronyms:**
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
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (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
ATE: Acute toxicity estimate values
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
· **Sources**
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH, in the 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/RID, 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*** *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
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
· ***Environmental release category*** *ERC1 Manufacture of the substance*
· ***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.
According to directions for use.
· ***Duration and frequency*** *8hrs (full working shift).*
· ***Worker*** *8hrs (full working shift).*
· ***Environment***
The product may not be released into the aquatic environment without pre-treatment (biological purification plant).
· ***Physical parameters***
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the preparation.
· ***Physical state*** *Viscous liquid*
· ***Concentration of the substance in the mixture*** *The substance is main component.*
· ***Used amount per time or activity*** *1200000 tons per year*
· ***Other operational conditions*** *Observe the general safety regulations when handling chemicals.*
· ***Other operational conditions affecting environmental exposure***
No special measures required.
Observe section 6 of the Safety Data Sheet (Accidental release measures).
· ***Other operational conditions affecting worker exposure***
Avoid contact with eyes.
Avoid contact with the skin.
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.
Deploy only trained chemical workers.
Provide sufficient washing facilities.
Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
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.
· ***Technical protective measures***
Only handle and refill product in closed systems or under local exhaust.

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Ensure good ventilation/exhaustion at the workplace.

· **Personal protective measures**
Avoid contact with the skin.
Avoid contact with the eyes.
Acid resistant protective clothing
Use protective suit.
Apron
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.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Protective gloves
Rubber gloves
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.
The selected respiratory protection must comply with standard EN 136/140/143/145/149.

· **Environmental protection measures**

· **Water**
Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.
Do not allow to reach sewage system.

· **Soil** Prevent contamination of soil.

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

· **Disposal measures**
Disposal must be made according to official regulations.
Ensure that waste is collected and contained.
Ensure that all wastewater is collected and treated in a wastewater treatment plant.

· **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**

· **Environment** The highest environmental exposure to be expected for surface waters is 0 mg / L.

· **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.

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Annex: Exposure scenario 2

· ***Short title of the exposure scenario*** *Chemicals products for laboratory*
· ***Sector of Use*** *Industrial use.*
· ***Process category*** *PROC15 Use as laboratory reagent*
· ***Environmental release category***
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
· ***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.
According to directions for use.
· ***Duration and frequency*** *8hrs (full working shift).*
· ***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.*
· ***Used amount per time or activity*** *5000 tons per year*
· ***Other operational conditions*** *Observe the general safety regulations when handling chemicals.*
· ***Other operational conditions affecting environmental exposure***
No special measures required.
Observe section 6 of the Safety Data Sheet (Accidental release measures).
· ***Other operational conditions affecting worker exposure***
Avoid direct contact with the chemical /product / preparation by organisational measures.
Avoid contact with eyes.
Avoid contact with the skin.
· ***Risk management measures***
· ***Worker protection***
· ***Organisational protective measures***
Keep good industrial hygiene.
Ensure that activities are executed by specialists or authorised personnel only.
Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
Provide sufficient washing facilities.
· ***Technical protective measures***
When diluting always pour product into water and not vice versa.
Ensure good ventilation/exhaustion at the workplace.
· ***Personal protective measures***
Avoid contact with the skin.
Avoid contact with the eyes.
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
Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.
Protective work clothing
Apron
Face protection

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The usual precautionary measures are to be adhered to when handling chemicals.
Detailed measures on hand protection according to Safety Data Sheet, section 8.

· ***Environmental protection measures***
· ***Water***
Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.
· ***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*
· ***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.

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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
PROC5 Mixing or blending in batch processes
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.
According to directions for use.
· ***Duration and frequency*** *8hrs (full working shift).*
· ***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.*
· ***Used amount per time or activity*** *300000 tons per year*
· ***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 eyes.
Avoid contact with the skin.
· ***Risk management measures***
· ***Worker protection***
· ***Organisational protective measures***
Keep good industrial hygiene.
Ensure that activities are executed by specialists or authorised personnel only.
Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
Provide sufficient washing facilities.
· ***Technical protective measures***
No special measures required.
Ensure good ventilation/exhaustion at the workplace.
· ***Personal protective measures***
Avoid contact with the skin.
Avoid contact with the eyes.
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

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Rubber gloves
Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.
Protective work clothing
Apron
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.

· ***Environmental protection measures***
· ***Water***
Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.
· ***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*
· ***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.

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Annex: Exposure scenario 4

· **Short title of the exposure scenario**
· **Sector of Use**
Industrial use.
SU14 Manufacture of basic metals, including alloys
SU15 Manufacture of fabricated metal products, except machinery and equipment
SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
· **Product category**
PC14 Metal surface treatment products
PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
· **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
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)
PROC13 Treatment of articles by dipping and pouring
· **Environmental release category**
ERC5 Use at industrial site leading to inclusion into/onto article
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.
· **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** 50-200 tons per year
· **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 eyes.
Avoid contact with the skin.
· **Risk management measures**
· **Worker protection**
· **Organisational protective measures**
Keep good industrial hygiene.
Ensure that activities are executed by specialists or authorised personnel only.
Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
Provide sufficient washing facilities.
· **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.
Avoid contact with the eyes.
Detailed measures on hand protection according to Safety Data Sheet, section 8.
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
Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.
Protective work clothing
Acid resistant protective clothing
Apron
Tightly sealed goggles
· ***Environmental protection measures***
· ***Air*** *Exhaust air is introduced into the adsorption tower.*
· ***Water***
Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.
· ***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 0.00000019*
· ***Worker (inhalation)*** *RCR 0.18*
· ***Environment***
RCR 0.039
The estimation of environmental exposure was carried out in accordance with EUSES.
· ***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.