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

Printing date 27.04.2026 *Version number 8 (replaces version 7)* *Revision: 19.04.2026*

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

· **1.1 Product identifier**
· **Trade name: Hydrochloric acid 3-4%; 1M**
· **SDS number:** CH5041
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
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

Met. Corr.1 H290 May be corrosive to metals.

· **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** Warning
· **Hazard statements**
H290 May be corrosive to metals.
· **Precautionary statements**
P234 Keep only in original packaging.
P390 Absorb spillage to prevent material damage.
P406 Store in a corrosion resistant container / container with a resistant inner liner.
· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable
· **vPvB:** Not applicable

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· **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:**

EINECS: 231-595-7 Index number: 017-002-01-X RTECS: MW 9620000 Reg.nr.: 01-2119484862-27	hydrochloric acid Consisting of: 7647-01-0 hydrogen chloride Met. Corr.1, H290; Skin Corr. 1B, H314; Eye Dam. 1, H318; STOT SE 3, H335 Specific concentration limits: Skin Corr. 1B; H314: C ≥ 25 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Dam. 1; H318: C ≥ 25 % STOT SE 3; H335: C ≥ 10 % Met. Corr.1; H290: C ≥ 0.1 %	3-<4%

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **After inhalation:** Supply fresh air; consult a doctor in case of complaints.
· **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.
· **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:** Use fire extinguishing methods suitable to surrounding conditions.
· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
· **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** 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.

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· ***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).
· ***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*** *No special precautions are necessary if used correctly.*
· ***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:*** *Protect from frost.*
· ***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:**	
hydrochloric acid	
IOELV	Short-term value: 15 mg/m³, 10 ppm Long-term value: 8 mg/m³, 5 ppm

· ***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.
Avoid contact with the eyes and skin.
· ***Respiratory protection:***
Filter P2
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
Rubber gloves
Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.

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· ***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 60 minutes
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.14 mm
· ***As protection from splashes gloves made of the following materials are suitable:***
Natural rubber, NR
Recommended thickness of the material: ≥ 0.22 mm
· ***Eye/face protection***



Safety glasses

· ***Body protection:*** *Protective work clothing*
· ***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***	*18.02 g*
· ***Physical state***	*Liquid*
· ***Colour:***	*Colourless*
· ***Odour:***	*Pungent*
· ***Odour threshold:***	*Not determined*
· ***Melting point/freezing point:***	*Undetermined*
· ***Boiling point or initial boiling point and boiling range***	*100 °C (CAS: 7732-18-5 water, distilled, conductivity or of similarpurity)*
· ***Flammability***	*Not applicable*
· ***Lower and upper explosion limit***	
· ***Lower:***	*Not determined*
· ***Upper:***	*Not determined*
· ***Flash point:***	*Not applicable*
· ***pH at 20 °C***	*<3*
· ***Viscosity:***	
· ***Kinematic viscosity***	*Not determined*
· ***Dynamic at 20 °C:***	*0.952 mPas*
· ***Solubility***	
· ***water:***	*Fully miscible.*
· ***Partition coefficient n-octanol/water (log value)***	*Not determined*
· ***Vapour pressure:***	*Not determined*
· ***Density and/or relative density***	
· ***Density at 20 °C:***	*1.021 g/cm³*
· ***Relative density***	*Not determined*
· ***Vapour density***	*Not determined*

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· **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:**	96.5 %
· **Solids content:**	0.0 %
· **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
· **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**	May be corrosive to metals.
· **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.
Corrosive action on metals.
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:**
No decomposition products known, more dangerous than the product as such.

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.

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· ***Primary irritant effect:***
· ***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.*
· ***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.*
· ***11.2 Information on other hazards***

· ***Endocrine disrupting properties***

None of the ingredients is listed.

*
SECTION 12: Ecological information

· ***12.1 Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***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.

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

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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.

· ***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***	*UN1789*
· ***14.2 UN proper shipping name***	
· ***ADR/RID***	*1789 HYDROCHLORIC ACID*
· ***IMDG***	*HYDROCHLORIC ACID*
· ***IATA***	*Hydrochloric 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***	*III*
· ***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***	*C*
· ***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*
· ***Transport/Additional information:***	
· ***ADR/RID***	
· ***Limited quantities (LQ)***	*5L*

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· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 ml* *Maximum net quantity per outer packaging: 1000 ml*
· ***Transport category***	*3*
· ***Tunnel restriction code***	*E*
· ***IMDG***	
· ***Limited quantities (LQ)***	*5L*
· ***Excepted quantities (EQ)***	*Code: E1* *Maximum net quantity per inner packaging: 30 ml* *Maximum net quantity per outer packaging: 1000 ml*
· ***UN "Model Regulation":***	*UN 1789 HYDROCHLORIC ACID, 8, III*

SECTION 15: Regulatory information

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

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

hydrochloric acid

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

hydrochloric 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.

· ***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) 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.*

· ***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 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.

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· ***Relevant phrases***
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
· ***Department issuing SDS:*** Q.A./Normative
· ***Date of previous version:*** 08.04.2022
· ***Version number of previous version:*** 7
· ***Abbreviations and acronyms:***
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)
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
ATE: Acute toxicity estimate values
Met. Corr.1: Corrosive to metals – Category 1
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
· ***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*** *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*** *4 hrs (half 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*** *The substance is main component.*
· ***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.
Ensure adequate ventilation, especially in closed rooms.
· ***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.
Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
· ***Technical protective measures*** *Ensure good ventilation/exhaustion at the workplace.*
· ***Personal protective measures***
Avoid contact with the skin.
Avoid contact with the eyes.
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.
Face protection
The usual precautionary measures are to be adhered to when handling chemicals.
Detailed measures on hand protection according to Safety Data Sheet, section 8.
Use suitable respiratory protective device only when aerosol or mist is formed.
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.
Use suitable respiratory protective device in case of insufficient ventilation.
The selected respiratory protection must comply with standard EN 136/140/143/145/149.
Protective work clothing
Acid resistant protective clothing
Apron

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· ***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*
· ***Exposure estimation***
· ***Worker (inhalation)***
The highest inhalative exposure to be expected is 2.12 ppm.
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR 0.4
· ***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
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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*** *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*** *The substance is main component.*
· ***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).
· ***Risk management measures***
· ***Worker protection***
· ***Organisational protective measures***
Keep good industrial hygiene.
Ensure that activities are executed by specialists or authorised personnel only.
The appropriate type of chemical protective glove has to be selected specifically, depending on the concentration and quantity of hazardous substances in the workplace.
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 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.
Face protection
The usual precautionary measures are to be adhered to when handling chemicals.
Detailed measures on hand protection according to Safety Data Sheet, section 8.
Use suitable respiratory protective device only when aerosol or mist is formed.
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.
Use suitable respiratory protective device in case of insufficient ventilation.

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The selected respiratory protection must comply with standard EN 136/140/143/145/149.
Protective work clothing
Apron

· ***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*
· ***Exposure estimation***
· ***Worker (inhalation)***
The highest inhalative exposure to be expected is 5.29 ppm.
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR 0.9
· ***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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according to Regulation (EC) No 1907/2006, Article 31

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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
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)
· ***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*** *The substance is main component.*
· ***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***
Avoid contact with the skin.
Avoid contact with the eyes.
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.
Tightly sealed goggles
The usual precautionary measures are to be adhered to when handling chemicals.

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Detailed measures on hand protection according to Safety Data Sheet, section 8.
Use suitable respiratory protective device only when aerosol or mist is formed.
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.
Use suitable respiratory protective device in case of insufficient ventilation.
The selected respiratory protection must comply with standard EN 136/140/143/145/149.
Protective work clothing
Apron

· ***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*
· ***Exposure estimation***
· ***Worker (inhalation)***
The highest inhalative exposure to be expected is 5.29 ppm.
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR 0.9
· ***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.