Safety data sheet

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

Printing date 08.05.2024 *Version number 4 (replaces version 3)* *Revision: 01.05.2024*

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

· **1.1 Product identifier**
· **Trade name: Ammonia solution 30-35%.**
· **SDS number:** CH5256
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Life cycle stages**
IS Use at industrial Sites
F Formulation or re-packing
· **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. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.
STOT SE 3 H335 May cause respiratory irritation.

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

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· ***Hazard pictograms***

GHS05 GHS07 GHS09

· ***Signal word*** *Danger*

· ***Hazard-determining components of labelling:***
ammonia, aqueous solution
· ***Hazard statements***
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
· ***Precautionary statements***
P280 Wear protective gloves / eye protection / face protection.
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.
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

· ***3.2 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: 1336-21-6 *EINECS: 215-647-6* *Index number: 007-001-01-2* *Reg.nr.: 01-2119488876-14*	*ammonia, aqueous solution* *Skin Corr. 1B, H314; Aquatic Acute 1, H400; Acute Tox. 4, H302; STOT SE 3, H335* *Specific concentration limit: STOT SE 3; H335: C ≥ 5 %*	*30-<35%*

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

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Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· ***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:***

Drink plenty of water and provide fresh air.

Do not induce vomiting; call for medical help immediately.

Call for a doctor immediately.

Rinse out mouth and then drink plenty of water.

· ***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:*** *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*** *In case of fire, the following can be released:*

· ***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.

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.

Do not allow to enter sewers/ surface or ground water.

In case of seepage into the ground inform responsible authorities.

· ***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.

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See Section 13 for disposal information.

SECTION 7: Handling and storage

· ***7.1 Precautions for safe handling***
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
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:***
Store in a well-ventilated place. Keep container tightly closed.
Unsuitable material for receptacle: aluminium.
Provide alkali-resistant floor.
Provide floor trough without outlet.
Prevent any seepage into the ground.
Use only receptacles specifically permitted for this substance/product.
· ***Information about storage in one common storage facility:*** *Do not keep in contact with acids.*
· ***Further information about storage conditions:*** *None.*
· ***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:***
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **DNELs**		
CAS: 1336-21-6 ammonia, aqueous solution		
Dermal	DNEL (workers-local effects Acute)	6.8 mg/kg
	DNEL (workers-systemic chronic effects)	6.8 mg/kg
Inhalative	DNEL (workers-local effects Acute)	36 mg/m3
	DNEL (workers-acute systemic)	47.6 mg/m3

· **PNECs**	
CAS: 1336-21-6 ammonia, aqueous solution	
PNEC (Fresh water)	0.0011 mg/l
PNEC (Intermittent rejection)	0.0068 mg/l
PNEC (Marine water)	0.0011 mg/l

· ***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.

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Do not inhale dust / smoke / mist.
Avoid contact with the eyes and skin.

· ***Respiratory protection:***
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.

· ***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.
Fluorocarbon rubber (Viton)
Recommended thickness of the material: ≥ 0.4 mm
Chloroprene rubber, CR
Recommended thickness of the material: ≥ 0.5 mm

· ***Penetration time of glove material***
The exact break trough 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:***
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.5 mm

· ***Not suitable are gloves made of the following materials:***
Nitrile rubber, NBR
Natural rubber, NR
PVC gloves

· ***Eye/face protection***

Tightly sealed goggles

· ***Body protection:***
Protective work clothing
Alkaline resistant protective clothing
Apron

· ***Environmental exposure controls***
The product must not be released into the environment.

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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***	*Fluid*
· ***Colour:***	*Colourless*
· ***Odour:***	*Like ammoniac*
· ***Odour threshold:***	*Not determined.*
· ***Melting point/freezing point:***	*<-69.2 °C*
· ***Boiling point or initial boiling point and boiling range***	*<25 °C*
· ***Flammability***	*Not applicable.*
· ***Lower and upper explosion limit***	
· ***Lower:***	*15 Vol %*
· ***Upper:***	*28 Vol %*
· ***Flash point:***	*Not applicable.*
· ***Decomposition temperature:***	*Not determined.*
· ***pH at 20 °C***	*>12*
· ***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:***	*1,319 hPa*
· ***Vapour pressure (2):***	
· ***Vapour pressure at 50 °C:***	*<2,000 hPa*
· ***Density and/or relative density***	
· ***Density at 20 °C:***	*0.898 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:***	*65.1 %*
· ***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 according to specifications.
· **10.3 Possibility of hazardous reactions**
Reacts with strong acids.
Strong exothermic reaction with acids.
With iodine in solution gives a precipitate of NJ3, explosive when dry.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:**
Strong acids.
Zinc
Aluminium
· **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** Harmful if swallowed.

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

CAS: 1336-21-6 ammonia, aqueous solution

Oral	LD50	350 mg/kg (rat)
Inhalative	LC50	13,770 mg/m³ (rat) (1h)

· **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.
· **Ingestion:** Harmful if swallowed.
· **Inhalation:**
Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Harmful if inhaled. May cause respiratory tract irritation.
May cause respiratory irritation.
· **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.

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· ***Reproductive toxicity*** *Based on available data, the classification criteria are not met.*
· ***STOT-single exposure*** *May cause respiratory irritation.*
· ***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.*
· ***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: 1336-21-6 ammonia, aqueous solution	
EC50/48h	*24 mg/l (Daphnia)*
EC50	*2 mg/L (bacteria (Photobacterium phosphoreum)) (5 mn)*
	24 mg/L (Daphnia)
LC50/96h	*0.53 mg/l (fishes)*

· ***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.
Very toxic for fish
· ***Additional ecological information:***
· ***General notes:***
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, 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.

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· ***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***	
06 00 00	*WASTES FROM INORGANIC CHEMICAL PROCESSES*
06 02 00	*wastes from the MFSU of bases*
*06 02 03**	*ammonium hydroxide*
HP5	*Specific Target Organ Toxicity (STOT)/Aspiration Toxicity*
HP6	*Acute Toxicity*
HP8	*Corrosive*
HP14	*Ecotoxic*

· ***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.
· ***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*** *UN2672*

· ***14.2 UN proper shipping name***
· ***ADR/RID*** *2672 AMMONIA SOLUTION, ENVIRONMENTALLY HAZARDOUS*
· ***IMDG*** *AMMONIA SOLUTION, MARINE POLLUTANT*
· ***IATA*** *Ammonia solution*

· ***14.3 Transport hazard class(es)***

· ***ADR/RID***

· ***Class*** *8 (C5) Corrosive substances.*
· ***Label*** *8*

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· ***IMDG***

· ***Class***	*8 Corrosive substances.*
· ***Label***	*8*

· ***IATA***

· ***Class***	*8 Corrosive substances.*
· ***Label***	*8*
· ***14.4 Packing group***	
· ***ADR/RID, IMDG, IATA***	*III*
· ***14.5 Environmental hazards:***	*Product contains environmentally hazardous substances: ammonia, aqueous solution*
· ***Marine pollutant:***	*Yes*
	Symbol (fish and tree)
· ***Special marking (ADR/RID):***	*Symbol (fish and tree)*
· ***14.6 Special precautions for user***	*Warning: Corrosive substances.*
· ***Hazard identification number (Kemler code):***	*80*
· ***EMS Number:***	*F-A,S-B*
· ***Segregation groups***	*(SGG18) Alkalis*
· ***Stowage Category***	*A*
· ***Stowage Code***	*SW2 Clear of living quarters.*
	SW5 If under deck, stow in a mechanically ventilated space.
· ***Segregation Code***	*SG35 Stow "separated from" SGG1-acids*
· ***14.7 Maritime transport in bulk according to IMO instruments***	*Not applicable.*
· ***Transport/Additional information:***	
· ***ADR/RID***	
· ***Excepted quantities (EQ):***	*E1*
· ***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
· ***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

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· **UN "Model Regulation":**	UN 2672 AMMONIA SOLUTION, 8, III, ENVIRONMENTALLY HAZARDOUS

SECTION 15: Regulatory information

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

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

None of the ingredients is listed.

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

CAS: 1336-21-6	ammonia, aqueous solution

· **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.
· **Seveso category** E1 Hazardous to the Aquatic Environment
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 200 t

· **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.

· **National regulations:**
· **Waterhazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

· **Other regulations, limitations and prohibitive regulations**

· **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**
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
· **Department issuing SDS:** Q.A./Normative
· **Date of previous version:** 22.03.2021
· **Version number of previous version:** 3

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· ***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
ELINCS: European List of Notified 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
ATE: Acute toxicity estimate values
Acute Tox. 4: Acute toxicity – Category 4
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
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – 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*** *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
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)
PROC15 Use as laboratory reagent
· ***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*** *The substance is main component.*
· ***Other operational conditions*** *Observe the general safety regulations when handling chemicals.*
· ***Other operational conditions affecting environmental exposure*** *Use only on hard ground.*
· ***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.
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***
Avoid release to the environment. Obtain special instructions / refer to Safety Data Sheet.

· ***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*** *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)***
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR 0.202

· ***Worker (inhalation)***
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR <0.98

· ***Environment***
The estimation of environmental exposure was carried out in accordance with EUSES.
RCR 0.045

· ***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***
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)
PROC13 Treatment of articles by dipping and pouring
PROC15 Use as laboratory reagent
PROC20 Use of functional fluids in small devices
· ***Environmental release category***
ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)
ERC8f Widespread use leading to inclusion into/onto article (outdoor)
ERC9a Widespread use of functional fluid (indoor)
ERC9b Widespread use of functional fluid (outdoor)
· ***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*** *The substance is main component.*
· ***Other operational conditions*** *Observe the general safety regulations when handling chemicals.*
· ***Other operational conditions affecting environmental exposure*** *Use only on hard ground.*
· ***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

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

· ***Environmental protection measures***
Avoid release to the environment. Obtain special instructions / refer to Safety Data Sheet.
· ***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*** *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)***
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR 0.202
· ***Worker (inhalation)***
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR <0.98
· ***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*** *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
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC15 Use as laboratory reagent
· ***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.*
· ***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*** *The substance is main component.*
· ***Other operational conditions*** *Observe the general safety regulations when handling chemicals.*
· ***Other operational conditions affecting environmental exposure*** *Use only on hard ground.*
· ***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.
Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
Provide sufficient washing facilities.
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*** *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.
Protective gloves
Rubber gloves
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
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.
Use suitable respiratory protective device only when aerosol or mist is formed.
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.

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Protective work clothing
Apron
· ***Environmental protection measures***
Avoid release to the environment. Obtain special instructions / refer to Safety Data Sheet.
· ***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*** *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)***
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR 0.202
· ***Worker (inhalation)***
The exposure estimation was carried out in accordance with ECETOC TRA.
RCR <0.98
· ***Environment***
The estimation of environmental exposure was carried out in accordance with EUSES.
RCR 0.121
· ***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.