

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

Printing date 13.05.2024

Version number 18 (replaces version 17)

Revision: 13.05.2024

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

- **1.1 Product identifier**
- **Molecular formula:** C₆ H₁₄
- **Structure formula:** C H₃ - (C H₂)₄ - C H₃
- **Trade name:** n-Hexane 95%
- **SDS number:** CH7304
- **CAS Number:**
110-54-3
- **EC number:**
203-777-6
- **Index number:**
601-037-00-0
- **Registration number** 01-2119480412-44
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
For professional users only
- **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**



GHS02 flame

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



GHS08 health hazard

Repr. 2 H361f Suspected of damaging fertility.

STOT RE 2 H373 May cause damage to the nervous system through prolonged or repeated exposure. Route of exposure: Inhalation.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.

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GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

· **2.2 Label elements**

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

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

· **Hazard pictograms**



GHS02



GHS07



GHS08



GHS09

· **Signal word** *Danger*

· **Hazard-determining components of labelling:**

n-Hexane

· **Hazard statements**

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H361f Suspected of damaging fertility.

H336 May cause drowsiness or dizziness.

H373 May cause damage to the nervous system through prolonged or repeated exposure. Route of exposure: Inhalation.

H304 May be fatal if swallowed and enters airways.

H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**

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

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

P280 Wear protective gloves / eye protection / face protection.

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

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

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

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** *Not applicable.*

· **vPvB:** *Not applicable.*

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SECTION 3: Composition/information on ingredients

- **3.1 Substances**
- **CAS No. Description**
CAS: 110-54-3 n-Hexane
- **Identification number(s)**
- **EC number:** 203-777-6
- **Index number:** 601-037-00-0
- **Specific concentration limits STOT RE 2; H373:** C ≥ 5 %

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **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. If skin irritation continues, consult a doctor.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor. Seek immediate medical advice.
- **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. Call a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed** Nausea
- **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:** CO₂ or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet.
- **5.2 Special hazards arising from the substance or mixture** Carbon monoxide and carbon dioxide
- **5.3 Advice for firefighters**
- **Protective equipment:** Do not inhale gases in case of fire or combustion.
- **Additional information** Keep receptacles cool with water spray.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Keep away any ignition source.
Wear protective equipment. Keep unprotected persons away.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Ensure adequate ventilation
- **6.2 Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.

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Do not allow to penetrate the ground/soil.

Do not allow product to reach sewage system or any water course.

Prevent seepage into sewage system, workpits and cellars.

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.

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

Store in cool, dry place in tightly closed receptacles.

Keep away from heat and direct sunlight.

Ensure good ventilation/exhaustion at the workplace.

Only handle and refill product in closed systems or under local exhaust.

Prevent formation of aerosols.

Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.

Pneumatic conveyance only with nitrogen or other inert gases.

· Information about fire - and explosion protection:



Keep ignition sources away - Do not smoke.

Protect from heat.

Protect against electrostatic charges.

Use explosion-proof apparatus / fittings and spark-proof tools.

Keep respiratory protective device available.

· 7.2 Conditions for safe storage, including any incompatibilities

· Storage:

· Requirements to be met by storerooms and receptacles:

Store in a cool location.

Prevent any seepage into the ground.

Use only receptacles specifically permitted for this substance/product.

· Information about storage in one common storage facility: Not required.

· Further information about storage conditions:

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

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

SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

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

CAS: 110-54-3 n-Hexane

IOELV Long-term value: 72 mg/m³, 20 ppm

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 · **DNELs**
CAS: 110-54-3 n-Hexane

Dermal	DNEL (workers-systemic chronic effects)	11 mg/kg
Inhalative	DNEL (workers-systemic chronic effects)	75 mg/m ³

 · **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.

Store protective clothing separately.

Do not inhale gases / fumes / aerosols.

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.

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.

 · **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

 · **For the permanent contact gloves made of the following materials are suitable:**

The penetration time has to be at least 480 minutes

Fluorocarbon rubber (Viton)

 Recommended thickness of the material: ≥ 0.4 mm

Nitrile rubber, NBR

 Recommended thickness of the material: ≥ 0.35 mm

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· Eye/face protection



Tightly sealed goggles

· Body protection: Protective work clothing

· Environmental exposure controls

The product must not be released into the environment.

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	86 g
· Physical state	Fluid
· Colour:	Colourless
· Odour:	Characteristic
· Odour threshold:	Not determined.
· Melting point/freezing point:	-95 °C
· Boiling point or initial boiling point and boiling range	69 °C
· Flammability	Highly flammable.
· Lower and upper explosion limit	
· Lower:	1.2 Vol %
· Upper:	7.4 Vol %
· Flash point:	-26 °C
· Auto-ignition temperature:	240 °C
· Decomposition temperature:	Not determined.
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic at 20 °C:	0.5 mPas
· Solubility	
· water at 20 °C:	0.1 g/l
· Partition coefficient n-octanol/water (log value)	4
· Vapour pressure at 20 °C:	160 hPa
· Vapour pressure (2) at 50 °C:	540 hPa
· Vapour pressure at 50 °C:	540 hPa
· Density and/or relative density	
· Density at 20 °C:	0.66 g/cm ³
· 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: Not determined.

· Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· Organic solvents: 100.0 %

· Solids content: 0.0 %

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· 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	Highly flammable liquid and vapour.
· 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** No dangerous reactions known.
- **10.4 Conditions to avoid**
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** Carbon monoxide, Carbon dioxide.

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: 110-54-3 n-Hexane

Oral	LD50	16,000 mg/kg (rat) (OECD 401)
Dermal	LD50	>3,350 mg/kg (rabbit) (OECD 402)
Inhalative	LC50/4 h	259.3 mg/L (rat) (OECD 403)

- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Irritating effect.
- **Inhalation:** May be harmful if inhaled. May cause respiratory tract 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.
- **Reproductive toxicity** Suspected of damaging fertility.

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- **STOT-single exposure** May cause drowsiness or dizziness.
- **STOT-repeated exposure**
May cause damage to the nervous system through prolonged or repeated exposure. Route of exposure: Inhalation.
- **Aspiration hazard** May be fatal if swallowed and enters airways.
- **Subacute to chronic toxicity:**
May afford troubles to the central nervous system in case of repeated exposure.
Cumulative effects in case of repeated exposures.
- **11.2 Information on other hazards**

- **Endocrine disrupting properties**

Substance is not listed.

SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

CAS: 110-54-3 n-Hexane

EC50/48h | 21.85 mg/l (Daphnia)

- **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:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms

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.

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 · **European waste catalogue**

HP3	Flammable
HP4	Irritant - skin irritation and eye damage
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP10	Toxic for reproduction
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.

Evaporate last traces before disposal.

SECTION 14: Transport information

 · **14.1 UN number or ID number**

 · **ADR/RID, IMDG, IATA**

UN1208

 · **14.2 UN proper shipping name**

 · **ADR/RID**

1208 HEXANES, ENVIRONMENTALLY HAZARDOUS

 · **IMDG**

HEXANES, MARINE POLLUTANT

 · **IATA**

Hexanes

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

 · **ADR/RID**

 · **Class**

3 (F1) Flammable liquids.

 · **Label**

3

 · **IMDG**

 · **Class**

3 Flammable liquids.

 · **Label**

3

 · **IATA**

 · **Class**

3 Flammable liquids.

 · **Label**

3

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· 14.4 Packing group	
· ADR/RID, IMDG, IATA	II
· 14.5 Environmental hazards:	
· Marine pollutant:	Symbol (fish and tree)
· Special marking (ADR/RID):	Symbol (fish and tree)
· 14.6 Special precautions for user	Warning: Flammable liquids.
· Hazard identification number (Kemler code):	33
· EMS Number:	F-E,S-D
· Stowage Category	E
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· 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	D/E

· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1208 HEXANES, 3, II, 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)**

Substance is not listed.

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

Substance is listed.

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

Substance is not listed.

· **Directive 2012/18/EU**

· **Named dangerous substances - ANNEX I** Substance is not listed.

· **Seveso category**

E2 Hazardous to the Aquatic Environment

P5c FLAMMABLE LIQUIDS

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t

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

Substance is not listed.

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· LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)

Substance is not 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

Substance is not listed.

· National regulations:
· Technical instructions (air):

Class	Share in %
I	50-100

· Waterhazard class: Water hazard class 2 (Assessment by list): hazardous for water.

· Other regulations, limitations and prohibitive regulations

660.0 g/l

100.00 %

· Substances of very high concern (SVHC) according to REACH, Article 57

Substance is not 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.

· Department issuing SDS: Q.A./Normative

· Date of previous version: 17.04.2021

· Version number of previous version: 17

· 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

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

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

DNEL: Derived No-Effect Level (REACH)

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

Flam. Liq. 2: Flammable liquids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Repr. 2: Reproductive toxicity – Category 2

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Asp. Tox. 1: Aspiration hazard – Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· 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

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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
 - PROC15 Use as laboratory reagent
- **Environmental release category**
 - ERC1 Manufacture of the substance
 - 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**
 - According to directions for use.
 - Customary application according to section 1.
- **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** According to directions for use.
- **Other operational conditions** Observe the general safety regulations when handling chemicals.
- **Other operational conditions affecting environmental exposure**
 - Use only on hard ground.
 - Observe section 6 of the Safety Data Sheet (Accidental release measures).
- **Other operational conditions affecting worker exposure**
 - Avoid contact with the skin.
 - Take precautionary measures against static discharge.
 - Keep away from sources of ignition - No smoking.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**
 - Keep good industrial hygiene.
 - Deploy only trained chemical workers.
 - Ensure that activities are executed by specialists or authorised personnel only.
 - Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.
 - Provide sufficient washing facilities.
 - Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
 - Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures**
 - Provide explosion-proof electrical equipment.

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Use product only in enclosed systems.

Ensure that suitable extractors are available on processing machines

Ensure good ventilation/exhaustion at the workplace.

· **Personal protective measures**

Do not inhale gases / fumes / aerosols.

Avoid contact with the skin.

The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Protective gloves

Rubber gloves

Solvent resistant protective clothing

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.

Filter A/P2

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.

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

· **Environmental protection measures**

· **Water** 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.

· **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 exposure estimation was carried out in accordance with ECETOC TRA.

The calculated value is smaller than the DNEL.

· **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** 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)
 - PROC14 Tableting, compression, extrusion, pelletisation, granulation
 - 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** 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.
- **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 the skin.
Take precautionary measures against static discharge.
Keep away from sources of ignition - No smoking.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**
Keep good industrial hygiene.
Deploy only trained chemical workers.
Ensure that activities are executed by specialists or authorised personnel only.
Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.
Persons, who tend to skin diseases or other hypersensitivity reactions of the skin, should not handle the product.
Provide sufficient washing facilities.
Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures**
Use product only in enclosed systems.
Ensure good ventilation/exhaustion at the workplace.
Provide explosion-proof electrical equipment.

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· Personal protective measures*Avoid contact with the skin.**The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.**Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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.**The selected respiratory protection must comply with standard EN 136/140/143/145/149.**Protective work clothing***· Environmental protection measures****· Water** *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 (inhalation)***The exposure estimation was carried out in accordance with ECETOC TRA.**The calculated value is smaller than the DNEL.***· 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** Chemicals products for laboratory
- **Sector of Use** Industrial use.
- **Description of the activities / processes covered in the Exposure Scenario**
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use** Customary application according to section 1.
- **Duration and frequency** 5 workdays/week.
- **Physical parameters**
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the preparation.
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions** Observe the general safety regulations when handling chemicals.
- **Other operational conditions affecting environmental exposure** Use only on hard ground.
- **Other operational conditions affecting worker exposure**
Ensure adequate ventilation, especially in closed rooms.
Avoid contact with the skin.
Take precautionary measures against static discharge.
Keep away from sources of ignition - No smoking.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**
Keep good industrial hygiene.
Deploy only trained chemical workers.
Ensure that activities are executed by specialists or authorised personnel only.
Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.
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.
Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures**
Ensure good ventilation/exhaustion at the workplace.
Use product only in enclosed systems.
Provide explosion-proof electrical equipment.
- **Personal protective measures**
Avoid contact with the skin.
The selected protective gloves have to satisfy the specifications of REGULATION (EU) 2016/425 and the standard EN 374 derived from it.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the 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.
The selected respiratory protection must comply with standard EN 136/140/143/145/149.

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Protective work clothing

· **Environmental protection measures**

Avoid release to the environment. Obtain special instructions / refer to Safety Data Sheet.

· **Water** *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.

· **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 exposure estimation was carried out in accordance with ECETOC TRA.

The calculated value is smaller than the DNEL.

· **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.