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

revised on: 12.01.2023

Version number 13

Creation Date: 09.02.2016

SECTION 1: Identification of the substance/mixture and of the company/undertaking
· 1.1 Product identifier
· Trade name: Cyclohexane
 Article number: 2429, 2448, 2455, 2483, 2484, 4002 CAS Number: 110-82-7 EC number: 203-806-2 Index number:
601-017-00-1 • Registration number 01 2110462272 41 XXXX
 Registration number 01-2119463273-41-XXXX 1.2 Relevant identified uses of the substance or mixture and uses advised against Life cycle stages F Formulation or re-packing IS Use at industrial Sites
· Sector of Use
 SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU24 Scientific research and development
Product category
 PC19 Intermediate PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals PC29 Pharmaceuticals PC39 Cosmetics, personal care products
PC40 Extraction agents
 Process category PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or
processes with equivalent containment conditions 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 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent
 Environmental release category ERC1 Manufacture of the substance ERC2 Formulation into mixture ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC6a Use of intermediate
 Application of the substance / the mixture Industrial use Laboratory chemicals Reagent for analysis
 1.3 Details of the supplier of the safety data sheet Manufacturer/Supplier: Th. Geyer GmbH & Co. KG Dornierstr. 4 – 6 D-71272 Renningen
(Contd. on page 2)

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Tel.: +49(0)7159-1637-0, Fax:+49 (0)7159/18417 www.thgeyer.de sicherheitsdatenblaetter@thgeyer.de	(Contd. of page 1)
• Further information obtainable from: Product	management department
• 1.4 Emergency telephone number: National Poisons Information Service City Hospital Dudley Road Birmingham B18 7QH Tel.:Emergency: (00 44) 87 06 00 62 66 Members of the public seeking specific information In England and Wales: NHS 111 - dial 111 In Scotland: NHS 24 - dial 111	
SECTION 2: Hazards identification	
 2.1 Classification of the substance or mixture Classification according to Regulation (EC) N 	
GHS02 flame	
Flam. Liq. 2 H225 Highly flammable liquid	and vapour.
GHS08 health hazard	
Asp. Tox. 1 H304 May be fatal if swallowe	d and enters airways.
GHS09 environment	
Aquatic Acute 1 H400 Very toxic to aquatic life Aquatic Chronic 1 H410 Very toxic to aquatic life	
GHS07	
Skin Irrit. 2H315 Causes skin irritation.STOT SE 3H336 May cause drowsiness	or dizziness.
 2.2 Label elements Labelling according to Regulation (EC) No 12 The substance is classified and labelled accordin Hazard pictograms GHS02 GHS07 GHS08 GHS09 Signal word Danger Hazard statements H225 Highly flammable liquid and vapour. H315 Causes skin irritation. H336 May cause drowsinges or dizzinges 	72/2008 Ig to the GB CLP regulation.
H336 May cause drowsiness or dizziness.	(Contd. on page 3)

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H304 May be fatal if swallowed and enters airways.	
H410 Very toxic to aquatic life with long lasting effects.	
Precautionary statements	
P210 Keep away from heat, hot surfaces, sparks, open flames and	d other ignition sources. No smoking.
P240 Ground and bond container and receiving equipment.	
P273 Avoid release to the environment.	
P280 Wear protective gloves/protective clothing/eye protection/fac	
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doc	ctor.
P331 Do NOT induce vomiting.	
P302+P352 IF ON SKIN: Wash with plenty of soap and water.	
P403+P233 Store in a well-ventilated place. Keep container tightly closed	
P501 Dispose of contents/container in accordance with local/region	nal/national/international regulations.
2.3 Other hazards	
Results of PBT and vPvB assessment	
• PBT: Not applicable.	
· vPvB: Not applicable.	
SECTION 3: Composition/information on ingredients	
SECTION 5. Composition/million and ingredients	
3.1 Substances	
CAS No. Description	
CAS: 110-82-7 Cyclohexane	
Identification number(s)	
EC number: 203-806-2	
· Index number: 601-017-00-1	
SECTION 4: First aid measures	
1.4 Decemination of first aid measures	
4.1 Description of first aid measures	
General information:	
First aider needs to protect himself.	
Immediately remove any clothing soiled by the product.	
After inhalation:	
• After inhalation: Remove person from danger area.	
• After inhalation: Remove person from danger area. Supply fresh air.	
After inhalation: Remove person from danger area. Supply fresh air. Call a doctor immediately.	actation
After inhalation: Remove person from danger area. Supply fresh air. Call a doctor immediately. In case of unconsciousness place patient stably in side position for transp	portation.
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Gastric or intestinal disorders	
Unconsciousness	
Nausea	
· Hazards	
Danger of pulmonary oedema.	
Danger of pneumonia.	
Danger of circulatory collapse.	
• 4.3 Indication of any immediate medical attention and special treatment needed	ed
Give Glucocorticoid-Aerosol in case of lung irritation.	
If necessary oxygen respiration treatment.	
Monitor circulation.	
If swallowed, gastric irrigation with added, activated carbon.	
If swallowed or in case of vomiting, danger of entering the lungs.	
Later observation for pneumonia and pulmonary oedema.	
SECTION 5: Firefighting measures	
· 5.1 Extinguishing media · Suitable extinguishing agents:	
Water spray, powder, carbon dioxide or foam. Fight larger fires with water spray or a	alcohol resistant foam
• For safety reasons unsuitable extinguishing agents: Water with full jet.	
• 5.2 Special hazards arising from the substance or mixture	
Combustible.	
Can form explosive gas-air mixtures. Vapours may form explosive mixtures with air.	
In case of fire, the following can be released:	
Carbon dioxides (CO, CO $_{\Box}$)	
Ambient fire may liberate hazardous vapours.	
Under certain fire conditions, traces of other toxic gases cannot be excluded.	
• 5.3 Advice for firefighters	
· Protective equipment:	
Wear self-contained respiratory protective device.	
Do not inhale explosion gases or combustion gases.	
· Additional information	
Cool endangered receptacles with water spray.	
Dispose of fire debris and contaminated fire fighting water in accordance with officia	al regulations
SECTION 6: Accidental release measures	
6.1 Personal precautions, protective equipment and emergency procedures	
Keep away from ignition sources.	
Particular danger of slipping on leaked/spilled product.	
Avoid contact with eyes and skin.	
Use respiratory protective device against the effects of fumes/dust/aerosol.	
Ensure adequate ventilation.	
Wear protective equipment. Keep unprotected persons away.	
Consult an expert.	
· 6.2 Environmental precautions:	
Inform respective authorities in case of seepage into water course or sewage system	m.
Danger of explosion.	
Do not allow to enter sewers/surface or ground water.	
· · · · · · · · · · · · · · · · · ·	
• 6.3 Methods and material for containment and cleaning up:	
 6.3 Methods and material for containment and cleaning up: Cover drains. 	, sawdust).
• 6.3 Methods and material for containment and cleaning up:	, sawdust).
 6.3 Methods and material for containment and cleaning up: Cover drains. Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, 	, sawdust).

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· 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 receptacles tightly sealed.

Keep away from heat and direct sunlight.

Apply the general protection and hygiene measures for the handling with chemicals.

Information about fire - and explosion protection:

Traces of flammable substances may collect in the steam chamber of enclosed systems. Keep clear ofignition sources.

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

- · 7.2 Conditions for safe storage, including any incompatibilities
- · Storage:
- Requirements to be met by storerooms and receptacles:
- Prevent any seepage into the ground.

Store in a cool location.

Store only in the original receptacle.

- · Information about storage in one common storage facility: Store away from oxidising agents.
- Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

· Storage class: 3

• 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: 110-82-7 Cyclohexane

WEL Short-term value: 1050 mg/m³, 300 ppm

Long-term value: 350 mg/m³, 100 ppm

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

- · 8.2 Exposure controls
- Appropriate engineering controls No further data; see item 7.
- Individual protection measures, such as personal protective equipment
- General protective and hygienic measures:
- 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 skin.
- Avoid contact with the eyes and skin.
- · Respiratory protection: Not necessary if room is well-ventilated.
- Hand protection



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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(Contd. of page 5) Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation Labsolute®protective

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.

NBR: acrylonitrile-butadiene rubber

Material thickness > 0.4 mm

· 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.

level 6 for application > 480 min

· Eye/face protection



Tightly sealed goggles

· Body protection:



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Protective work clothing (e. g. safety shoes EN ISO 20345, long-sleeved protective working garments).

SECTION 9: Physical and chemical prope	erties
· 9.1 Information on basic physical and chemical p	roperties
· General Information	
· Physical state	Fluid
· Colour:	Colourless
· Odour:	Sweetish
 Melting point/freezing point: 	6.4 °C
• Boiling point or initial boiling point and boiling	
range	81 °C
· Flammability	Highly flammable.
• Lower and upper explosion limit	
Lower:	1.2 Vol %
· Upper:	8.3 Vol %
Flash point:	-18 °C
Ignition temperature:	260 °C
Decomposition temperature:	Not determined.
· pH	Not determined.
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic at 20 °C:	0.94 mPas
· Solubility	
· water at 20 °C:	0.05 g/l
Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure at 20 °C:	104 hPa
Density and/or relative density	
Density at 20 °C:	0.78 g/cm³
,	Not determined.
· 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 a	ind
environment, and on safety.	
· Auto-ignition temperature:	Not determined.
Explosive properties:	Product is not explosive. However, formation of
	explosive air/vapour mixtures are possible.
· Molecular weight	84.16 g/mol
[·] Change in condition	
· Evaporation rate	Not determined.
· Information with regard to physical hazard clas	Ses
· 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 flammab	le
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** No further relevant information available.

• 10.2 Chemical stability Stable with proper storage and handling.

• Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

10.3 Possibility of hazardous reactions

Reacts with alkaline metals.

Reacts with peroxides.

Reacts with oxidising agents.

Forms explosive gas mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks

Vapours form explosive mixtures with air.

• 10.5 Incompatible materials: Avoid contact with other chemicals.

• 10.6 Hazardous decomposition products: On fire: see chapter 5

SECTION 11: Toxicological information

 \cdot 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

 \cdot Acute toxicity Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

Oral LD50 >5,000 mg/kg (rat)

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- · Skin corrosion/irritation Causes skin irritation.
- 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 May cause drowsiness or dizziness.
- STOT-repeated exposure Based on available data, the classification criteria are not met.
- Aspiration hazard May be fatal if swallowed and enters airways.
- 11.2 Information on other hazards
- Endocrine disrupting properties Substance is not 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.
- 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:
- Very toxic for fish
- Toxic for fish
- Toxic for water fleas
- Toxic for algae
- · Additional ecological information:
- General notes:
- Very toxic for aquatic organisms
- Also poisonous for fish and plankton in water bodies.
- Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water
- Do not allow product to reach ground water, water course or sewage system.
- Danger to drinking water if even small quantities leak into the ground.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

Observe local (country-specific) regulations and laws

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Recommendation

Must not be disposed together with household garbage. Do not allow product to reach sewage system. Chemicals must be disposed of in compliance with the respective national regulations.

· European waste catalogue		
16 00 00	WASTES NOT OTHERWISE SPECIFIED IN THE LIST	
16 05 00	gases in pressure containers and discarded chemicals	
16 05 08*	discarded organic chemicals consisting of or containing hazardous substances	
HP3	Flammable	
HP4	Irritant - skin irritation and eye damage	
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity	
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HP14

· Uncleaned packaging:

Ecotoxic

· Recommendation:

Dispose of packaging according to regulations on the disposal of packagings. Packagings that may not be cleansed are to be disposed of in the same manner as the product.

14.1 UN number or ID number	
ADR, IMDG, IATA	UN1145
14.2 UN proper shipping name ADR	1145 CYCLOHEXANE, ENVIRONMENTALLY HAZARDOUS
IMDG, IATA	CYCLOHEXANE
14.3 Transport hazard class(es)	
ADR	
Class Label	3 (F1) Flammable liquids. 3
Class Label	3 Flammable liquids. 3
14.4 Packing group ADR, IMDG, IATA	II
14.5 Environmental hazards: Special marking (ADR):	Environmentally hazardous substance, liquid Symbol (fish and tree)
14.6 Special precautions for user Hazard identification number (Kemler code): EMS Number: Stowage Category	Warning: Flammable liquids. 33 F-E,S-D E
14.7 Maritime transport in bulk according to IM instruments	IO Not applicable.
Transport/Additional information:	
ADR Limited quantities (LQ) Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
Transport category Tunnel restriction code	2 D/E

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 IMDG Limited quantities (LQ) Excepted quantities (EQ) 	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 1145 CYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS

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• 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
· Inventory of Hazardous Chemicals
CAS: 110-82-7 Cyclohexane
· Directive 2012/18/EU
• Named dangerous substances - ANNEX I Substance is not listed.
· Seveso category
E1 Hazardous to the Aquatic Environment
P5c FLAMMABLE LIQUIDS
• 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 (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 40, 57
DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical an
electronic equipment – Annex II
Substance is not listed.
· REGULATION (EU) 2019/1148
Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing
under Article 5(3))
Substance is not listed.
Annex II - REPORTABLE EXPLOSIVES PRECURSORS Substance is not listed.
Regulation (EC) No 273/2004 on drug precursors Substance is not listed.
Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community
third countries in drug precursors
Substance is not listed.
· National regulations:

· Information about limitation of use:

Employment restrictions concerning juveniles must be observed.

Employment restrictions concerning pregnant and lactating women must be observed.

• 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. Application, use and handling of our products take place out of our control and are solely your responsibility.

· Department issuing SDS: Product management

· Contact: Product management

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

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)

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LC50: Lethal concentration, 50 percent	,
LD50: Lethal dose, 50 percent	
PBT: Persistent, Bioaccumulative and Toxic	
vPvB: very Persistent and very Bioaccumulative	
Flam. Lig. 2: Flammable liquids – Category 2	
Skin Irrit. 2: Skin corrosion/irritation – Category 2	
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3	
Asp. Tox. 1: Aspiration hazard – Category 1	
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1	
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1	
* Data compared to the previous version altered.	
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revised on: 12.01.2023

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Creation Date: 09.02.2016

Trade name: Cyclohexane

Annex: Exposure scenario

• Short title of the exposure scenario Chemicals for Laboratory and industrial use Sector of Use SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU24 Scientific research and development Product category PC19 Intermediate PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals PC29 Pharmaceuticals PC39 Cosmetics, personal care products PC40 Extraction agents Process category PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions 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 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent · Environmental release category ERC1 Manufacture of the substance ERC2 Formulation into mixture ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6a Use of intermediate • Notes The product is not intended for private 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 · Duration and frequency 5 workdays/week. · Worker 8hrs (full working shift). • Environment The product must not enter the sewage system or the aquatic environment. · Physical parameters · 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. Do not breathe gas/vapour/aerosol. • Other operational conditions affecting consumer exposure Keep out of the reach of children. • Other operational conditions affecting consumer exposure during the use of the product Not applicable. · Risk management measures Worker protection · Organisational protective measures No special measures required. Technical protective measures Provide explosion-proof electrical equipment. Use product only in enclosed systems. Ensure that suitable extractors are available on processing machines (Contd. on page 13)

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· Personal protective measures
Do not inhale gases / fumes / aerosols.
Avoid contact with the skin.
Protective gloves
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Labsolute®protective
Measures for consumer protection
Ensure adequate labelling.
Keep locked up and out of the reach of children.
Environmental protection measures
Water
Do not allow to reach ground water, water bodies or sewage system.
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 (oral) Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.
• Worker (dermal) Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.
• Worker (inhalation) Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.
· Environment
Detailed information on the estimation of the environmental exposure can be found at http://
ecb.jrc.ec.europa.eu/euses/.
 Consumer Not relevant for this Exposure Scenario.
• Guidance for downstream users No further relevant information available.