

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

Printing date 27.07.2022

Version number 12.0

Revision: 27.07.2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Trade name: Tetrahydrofuran, 99,5%, anhydrous (max. 0,005% H₂O), with molecular sieves, stabilized with 2,6-Di-tert-butyl-4-methylphenol (BHT)

Article number: TE0229

CAS Number:
109-99-9

EC number:
203-726-8

Index number:
603-025-00-0

Registration number 01-2119444314-46-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against**Process category**

PROC5 Mixing or blending in batch processes

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC15 Use as laboratory reagent

Application of the substance / the preparation: Laboratory reagent

1.3 Details of the supplier of the safety data sheet**Manufacturer/Supplier:**

Scharlab, S.L.

C/Gato Pérez, 33. Pol.Ind. Mas d'en Cisa

08181 Sentmenat (Barcelona) SPAIN

Tel: (+34) 93 745 64 00 - FAX: (+34) 93 715 27 65

email: scharlab@scharlab.com

Internet Web Site: www.scharlab.com

Regional representation:

Scharlab, S.L.

C/Gato Pérez, 33. Pol.Ind. Mas d'en Cisa

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Tel: (+34) 93 745 64 00 - FAX: (+34) 93 715 27 65

email: scharlab@scharlab.com

Internet Web Site: www.scharlab.com

Further information obtainable from: technical department

1.4 Emergency telephone number:

Please contact the regional Scharlab distributor/dealer in your country

During normal opening times: Scharlab, S.L. (+34) 93 715 18 11

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

Carc. 2 H351 Suspected of causing cancer.

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GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

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

Signal word Danger**Hazard statements**

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

H351 Suspected of causing cancer.

H335 May cause respiratory irritation.

Precautionary statements

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

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P370+P378 In case of fire: Use for extinction: CO₂, powder or water spray.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Additional information:

EUH019 May form explosive peroxides.

2.3 Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

SECTION 3: Composition/information on ingredients**3.1 Chemical characterisation: Substances****CAS No. Description**

109-99-9 tetrahydrofuran

Identification number(s)

EC number: 203-726-8

Index number: 603-025-00-0

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SECTION 4: First aid measures

• 4.1 Description of first aid measures

• **General information:**

Personal protection for the First Aider.

Take affected persons out of danger area and lay down.

• **After inhalation:**

Take affected persons into fresh air and keep quiet.

In severe cases such as cardiorespiratory arrest, artificial respiration techniques such as mouth-to-mouth resuscitation, cardiac massage, oxygen supply, etc. will be applied.

In case of unconsciousness place patient stably in side position for transportation.

Seek medical treatment.

• **After skin contact:**

Immediately remove contaminated clothing.

Immediately wash with water and soap and rinse thoroughly.

• **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

In the event that the injured person wears contact lenses, they must be removed as long as they are not stuck to the eyes, otherwise additional damage could occur.

• **After swallowing:**

Rinse out mouth and then drink plenty of water.

If symptoms persist consult doctor.

• 4.2 Most important symptoms and effects, both acute and delayed

The main symptoms are described for different cases of contact: Skin, eyes, inhalation and ingestion.

• 4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

• 5.1 Extinguishing media

• **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

• 5.2 Special hazards arising from the substance or mixture

During heating or in case of fire poisonous gases are produced.

Fire may cause evolution of:

Carbon monoxide (CO)

Carbon dioxide (CO₂)

Nitrogen oxides

• 5.3 Advice for firefighters

• **Protective equipment:**

In the work of extinction it is necessary to provide respiratory protection and full chemical protective clothing.

Wear fully protective suit.

Wear self-contained respiratory protective device.

• **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Cool endangered receptacles with water spray.

SECTION 6: Accidental release measures

• 6.1 Personal precautions, protective equipment and emergency procedures

Isolate leaks as long as it does not pose an additional risk to the people who perform this function.

Wear protective equipment. Keep unprotected persons away.

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6.2 Environmental precautions:

Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.

6.3 Methods and material for containment and cleaning up:

Send for recovery or disposal in suitable receptacles.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

6.4 Reference to other sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
Do not eat, drink or smoke during use.
Wash hands after any manipulation.
Open and handle receptacle with care.
Prevent contact with air/oxygen (formation of peroxide). Handle under dry inert gas.

Information about fire - and explosion protection:

Protect against electrostatic charges.
Vapors are heavier than air and may spread along floors.
Use explosion-proof apparatus / fittings and spark-proof tools.

7.2 Conditions for safe storage, including any incompatibilities**Storage:****Requirements to be met by storerooms and receptacles:**

Store in a cool, dry, well-ventilated place.
Store only in unopened original receptacles.

Information about storage in one common storage facility: Not required.**Further information about storage conditions:**

Keep container tightly sealed.
Avoid sources of heat, radiation, static electricity and contact with food.
Store under lock and key and with access restricted to technical experts or their assistants only.
Avoid contact with air / oxygen (formation of peroxide).
Store in nitrogen.

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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters**Additional information about design of technical facilities:** No further data; see item 7.**Ingredients with limit values that require monitoring at the workplace:****109-99-9 tetrahydrofuran**WEL Short-term value: 300 mg/m³, 100 ppmLong-term value: 150 mg/m³, 50 ppm

Sk

DNELsDNEL worker, cronic. Local effects: Inhalative - 150 mg/m³DNEL worker, cronic. Systematic effects: Inhalative - 150 mg/m³

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DNEL worker, cronic. Systematic effects: Dermic - 25 mg/kg body weight
DNEL consumer, prolonged. Systematic effects: Inhalative - 62 mg/m³
DNEL consumer, prolonged. Systematic effects: Dermic - 15 mg/kg body weight
DNEL consumer, acute. Local effects: Inhalative - 150 mg/m³
DNEL consumer, acute. Systematic effects: Inhalative - 150 mg/m³

PNECs

PNEC (Fresh water): 4.32 mg/L
PNEC (Sea water): 0.432 mg/L
PNEC (Freshwater sediments): 23.3 mg/kg
PNEC (Seawater sediments): 2.33 mg/kg
PNEC (Residual water depuration system): 4.6 mg/kg
PNEC (Soil): 2.13 mg/kg
PNEC (Periodic water release): 21.6 mg/L

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

8.2 Exposure controls**• 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 eyes.
Avoid contact with the eyes and skin.

• Respiratory protection:

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.

• Protection of hands:

Protective gloves

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

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

• 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.

• Eye protection:

Tightly sealed goggles

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SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****General Information****Appearance:****Form:**

Fluid

Colour:

Colourless

Odour:

Ether-like

Odour threshold:

Not determined.

pH-value:

Neutral

Change in condition**Melting point/freezing point:**

-108.5 °C

Initial boiling point and boiling range:

65.5 °C

Flash point:

-21 °C

Flammability (solid, gas):

Not applicable.

Ignition temperature:

230 °C

Decomposition temperature:

Not determined.

Auto-ignition temperature:

Not determined.

Explosive properties:

May form explosive peroxides.

Explosion limits:**Lower:**

1.5 Vol %

Upper:

12 Vol %

Vapour pressure at 20 °C:

200 hPa

Density at 20 °C:0.8892 g/cm³**Relative density**

Not determined.

Vapour density

Not determined.

Evaporation rate

Not determined.

Solubility in / Miscibility with water:

Fully miscible.

Partition coefficient: n-octanol/water:

Not determined.

Viscosity:**Dynamic:**

Not determined.

Kinematic:

Not determined.

9.2 Other information

No further relevant information available.

SECTION 10: Stability and reactivity**10.1 Reactivity**

Stable under normal conditions. If used according to the regulation no decomposition occurs.

10.2 Chemical stability**Thermal decomposition / conditions to be avoided:**

No decomposition if used according to specifications.

10.3 Possibility of hazardous reactions

Forms peroxides.

10.4 Conditions to avoid

Heat, open flames and sparks

10.5 Incompatible materials:

Strong oxidizing agents.

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- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **LD/LC50 values relevant for classification:**
 - Oral LD50 1650 mg/kg (rat)
 - Dermal LD50 >2000 mg/kg (rat)
- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation**
Causes serious eye irritation.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity**
Suspected of causing cancer.
- **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.

SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:**
 - Toxicity to fish
LC50 - Pimephales promelas (Fathead piscardo) - 2160 mg/L - 96 h
 - Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (large sea flea) - 3485 mg/L - 48 h
 - Toxicity to bacteria
CE20 - Activated sludge - 800 mg/L (0.5h)
- **12.2 Persistence and degradability**
 - Easily biodegradable
 - Biodegradation = 90-100 %
 - Exposure time: 14 d
 - Easily eliminable from water.
- **12.3 Bioaccumulative potential**
Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
- **12.4 Mobility in soil**
The substance will slowly evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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12.6 Other adverse effects

Additional ecological information
Hazard for drinking water supplies.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Recommendation**

Must be specially treated adhering to official regulations.
After prior treatment product has to be disposed of in an incinerator for hazardous waste adhering to the regulations pertaining to the disposal of particularly hazardous waste.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Uncleaned packaging:**Recommendation:**

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

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****ADR, IMDG, IATA**

UN2056

14.2 UN proper shipping name**ADR****IMDG, IATA**2056 TETRAHYDROFURAN
TETRAHYDROFURAN**14.3 Transport hazard class(es)****ADR, IMDG, IATA****Class**

3 Flammable liquids.

Label

3

14.4 Packing group**ADR, IMDG, IATA**

II

14.5 Environmental hazards:**Marine pollutant:**

No

14.6 Special precautions for user

Warning: Flammable liquids.

Hazard identification number (Kemler code):

33

EMS Number:

3-06

Stowage Category

B

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

Transport/Additional information:**ADR****Limited quantities (LQ)**

1L

Transport category

2

Tunnel restriction code

D/E

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• **UN "Model Regulation":**

UN 2056 TETRAHYDROFURAN, 3, II

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SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I -**
- **Seveso category** P5c FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50000 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40
- **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.
- **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.

- **Classification according to Regulation (EC) No 1272/2008**
The classification of the mixture is generally based on the calculation method using substance data according to Regulation (EC) No 1272/2008.
- **Department issuing SDS:** product safety department
- **Contact:** msds@scharlab.com
- **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
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)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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Annex: Exposure scenario 1

- **1 - Short title of the exposure scenario** Industrial use
- **Sector of Use**
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
- **Process category**
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC15 Use as laboratory reagent
- **Environmental release category**
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
- **Description of the activities / processes covered in the Exposure Scenario**
See section 1 of the annex to the Safety Data Sheet.
- **2 - Conditions of use**
- **Duration and frequency**
8hrs (full working shift).
5 workdays/week.
- **Physical parameters**
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions**
- **Other operational conditions affecting worker exposure**
Assumes use at not more than 20 °C above ambient temperature, unless stated differently.
Avoid contact with eyes.
Take precautionary measures against static discharge.
Keep away from sources of ignition - No smoking.
Gloves required during a shift
- **Risk management measures**
Use in a ventilated with filtered air pressurized cabin. Effectiveness 90%
- **Worker protection**
- **Organisational protective measures**
The appropriate type of chemical protective glove has to be selected specifically, depending on the concentration and quantity of hazardous substances in the workplace.
- **Technical protective measures**
Provide explosion-proof electrical equipment.
Ensure that suitable extractors are available on processing machines
- **Personal protective measures**
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes.
Tightly sealed goggles
Wear suitable protective gloves and protective goggles /face protection during work.
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.
- **Measures for consumer protection** Ensure adequate labelling.
- **Environmental protection measures**
- **Air** No special measures required.
- **Water** No special measures required.
- **Soil** No special measures required.
- **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

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3 - Exposure estimation**Worker (dermal)**

The exposure estimation was carried out in accordance with ECETOC TRA.

Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

PROC 9: 0.69 (mg/kg/d)

PROC 15: 0.03 (mg/kg/d)

Worker (inhalation)

The exposure estimation was carried out in accordance with ECETOC TRA.

Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

PROC 9: 20 (mg/m³)

PROC 15: 5 (mg/m³)

Consumer Not relevant for this Exposure Scenario.**4 - Guidance for downstream users**

Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.

Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.

For the risk assessment, the tools recommended by ECHA can be used.

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Annex: Exposure scenario 2

- **1 - Short title of the exposure scenario** Laboratory use
- **Sector of Use**
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Process category**
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC15 Use as laboratory reagent
- **Environmental release category**
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
- **Description of the activities / processes covered in the Exposure Scenario**
See section 1 of the annex to the Safety Data Sheet.
- **2 - Conditions of use**
- **Duration and frequency** 5 workdays/week.
- **Physical parameters**
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Used amount per time or activity**
PROC 9: 1 hour(s)
PROC 15: 8 hour(s)
- **Other operational conditions**
- **Other operational conditions affecting worker exposure**
Assumes use at not more than 20 °C above ambient temperature, unless stated differently.
Avoid contact with eyes.
Take precautionary measures against static discharge.
Keep away from sources of ignition - No smoking.
Gloves required during a shift
- **Risk management measures**
Use in a ventilated with filtered air pressurized cabin. Effectiveness 80%
- **Worker protection**
- **Organisational protective measures**
The appropriate type of chemical protective glove has to be selected specifically, depending on the concentration and quantity of hazardous substances in the workplace.
- **Technical protective measures**
Provide explosion-proof electrical equipment.
Ensure that suitable extractors are available on processing machines
- **Personal protective measures**
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes.
Tightly sealed goggles
Wear suitable protective gloves and protective goggles /face protection during work.
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.
- **Measures for consumer protection** Ensure adequate labelling.
- **Environmental protection measures**
- **Air** No special measures required.
- **Water** No special measures required.
- **Soil** No special measures required.
- **Disposal measures**
Disposal must be made according to official regulations.
Ensure that waste is collected and contained.

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• 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**• 3 - Exposure estimation****• Worker (dermal)**

The exposure estimation was carried out in accordance with ECETOC TRA.

Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

PROC 9: 0.69 (mg/kg/d)

PROC 15: 0.03 (mg/kg/d)

• Worker (inhalation)

The exposure estimation was carried out in accordance with ECETOC TRA.

Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

PROC 9: 10 (mg/m³)

PROC 15: 10 (mg/m³)

• Consumer Not relevant for this Exposure Scenario.**• 4 - Guidance for downstream users**

Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.

Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.

For the risk assessment, the tools recommended by ECHA can be used.