

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

Printing date 30.07.2018

Revision: 30.10.2017

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

- **1.1 Product identifier**
- **Trade name:** Diethyl ether, 99,7%, anhydrous (max. 0,005% H₂O), stabilized with approx. 7 ppm of 2,6-Di-tert-butyl
- **Article number:** ET0083
- **CAS Number:** 60-29-7
- **EC number:** 200-467-2
- **Index number:** 603-022-00-4
- **Registration number** 01-2119535785-29-XXXX
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **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
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
- **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. 1 H224 Extremely flammable liquid and vapour.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

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.

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Hazard pictograms

GHS02 GHS07

Signal word Danger**Hazard statements**

H224 Extremely flammable liquid and vapour.

H302 Harmful if swallowed.

H336 May cause drowsiness or dizziness.

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.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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

P405 Store locked up.

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

Additional information:

EUH019 May form explosive peroxides.

EUH066 Repeated exposure may cause skin dryness or cracking.

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**

60-29-7 diethyl ether

Identification number(s)**EC number:** 200-467-2**Index number:** 603-022-00-4**SECTION 4: First aid measures****4.1 Description of first aid measures****General information:**

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

After inhalation: Supply fresh air; consult doctor in case of complaints.**After skin contact:** Generally the product does not irritate the skin.**After eye contact:** Rinse opened eye for several minutes under running water.**After swallowing:** Call for a doctor immediately.**4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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- **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, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**
No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **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.
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
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** Open and handle receptacle with care.
- **Information about fire - and explosion protection:**
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:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Do not seal receptacle gas tight.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
 - **8.1 Control parameters**
 - **Ingredients with limit values that require monitoring at the workplace:**
- 60-29-7 diethyl ether**
 WEL Short-term value: 620 mg/m³, 200 ppm
 Long-term value: 310 mg/m³, 100 ppm
- **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.
 Wash hands before breaks and at the end of work.
 - **Respiratory protection:** Not required.
 - **Protection of hands:**
 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

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
 - **General Information**
 - **Appearance:**
- | | |
|---|-----------------|
| Form: | Fluid |
| Colour: | Colourless |
| Odour: | Sweetish |
| Odour threshold: | Not determined. |
| pH-value: | Not determined. |
| Change in condition | |
| Melting point/freezing point: | -116.3 °C |
| Initial boiling point and boiling range: | 35 °C |
| Flash point: | -40 °C |
| Flammability (solid, gas): | Not applicable. |

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- **Ignition temperature:** 170 °C
- **Decomposition temperature:** Not determined.
- **Auto-ignition temperature:** Not determined.
- **Explosive properties:** May form explosive peroxides.
- **Explosion limits:**
 - Lower:** 1.7 Vol %
 - Upper:** 36 Vol %
- **Vapour pressure at 20 °C:** 587 hPa
- **Density at 20 °C:** 0.71 g/cm³
- **Relative density:** Not determined.
- **Vapour density:** Not determined.
- **Evaporation rate:** Not determined.
- **Solubility in / Miscibility with water at 20 °C:** 12 g/l
- **Partition coefficient: n-octanol/water:** Not determined.
- **Viscosity:**
 - Dynamic at 20 °C:** 0.233 mPas
 - Kinematic:** Not determined.
- **9.2 Other information:** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity:** No further relevant information available.
- **10.2 Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions:** No dangerous reactions known.
- **10.4 Conditions to avoid:** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:** Harmful if swallowed.
- **LD/LC50 values relevant for classification:**

| | | |
|------------|----------|-------------------|
| Oral | LD50 | 1,215 mg/kg (rat) |
| Inhalative | LC50/4 h | 73,000 mg/l (rat) |
- **Primary irritant effect:**
- **Skin corrosion/irritation:** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation:** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **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.

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- **STOT-single exposure**
May cause drowsiness or dizziness.
- **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:** 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.
- **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.
- **12.6 Other adverse effects** No further relevant information available.

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.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

- **14.1 UN-Number**
- **ADR, IMDG, IATA** UN1155
- **14.2 UN proper shipping name**
- **ADR** 1155 DIETHYL ETHER (ETHYL ETHER)
- **IMDG, IATA** DIETHYL ETHER (ETHYL ETHER)
- **14.3 Transport hazard class(es)**
- **ADR, IMDG, IATA**



- **Class** 3 Flammable liquids.
- **Label** 3
- **14.4 Packing group**
- **ADR, IMDG, IATA** I
- **14.5 Environmental hazards:**
- **Marine pollutant:** No
- **14.6 Special precautions for user** Warning: Flammable liquids.

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- **Danger code (Kemler):** 33
- **EMS Number:** 3-07
- **Stowage Category:** E
- **Stowage Code:** SW2 Clear of living quarters.
- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:** Not applicable.

• **Transport/Additional information:**

-
- **ADR:**
 - **Limited quantities (LQ):** 0
 - **Transport category:** 1
 - **Tunnel restriction code:** D/E
 - **UN "Model Regulation":** UN 1155 DIETHYL ETHER (ETHYL ETHER), 3, I

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** Substance is not listed.
- **Seveso category** P5a FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 10 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50 t
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40
- **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 européen sur le transport 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)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 Flam. Liq. 1: Flammable liquids – Category 1
 Acute Tox. 4: Acute toxicity – Category 4
 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
 - SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
 - SU9 Manufacture of fine chemicals
- **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
 - 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**
 - Emission days (days/year): 300
 - 8hrs (full working shift).
- **Physical parameters**
- **Physical state** Fluid
- **Concentration of the substance in the mixture**
 - Raw material.
 - It covers a percentage of substance in the product up to 100 %
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure** No special measures required.
- **Other operational conditions affecting worker exposure**
 - Take precautionary measures against static discharge.
 - Keep away from sources of ignition - No smoking.
- **Other operational conditions affecting consumer exposure during the use of the product**
Not applicable.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**
 - Handle the substance within a closed system.
 - Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
 - Ensure that the working area is organised, well lit and ventilated, with enough space to handle spilled product.
- **Technical protective measures**
 - Provide explosion-proof electrical equipment.
 - Ensure that suitable extractors are available on processing machines
 - Only handle and refill product in closed systems.
 - Store in cool, dry place in tightly closed receptacles.
 - Use product only in enclosed systems.
 - Drain the system before performing running operations or maintenance of equipment.

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Personal protective measures

Do not inhale gases / fumes / aerosols.

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

Measures for consumer protection Ensure adequate labelling.**Environmental protection measures****Water**

In case of discharge to a domestic wastewater treatment plant, it is not necessary to treat the wastewater in situ.

Avoid spilling the substance without dissolving residual water in situ or recovering it from it.

Soil No significant emissions to the terrestrial environment are expected.**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**3 - Exposure estimation**

To estimate exposures in the workplace has been used ECETOC TRA tool unless otherwise indicated.

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

PROC1: 0.34 mg/kg/day, RCR 0.01

PROC1: 1.37 mg/kg/day, RCR 0.03

PROC2: 1.37 mg/kg/day, RCR 0.03

PROC3: 0.34 mg/kg/day, RCR 0.01

PROC4: 6.86 mg/kg/day, RCR 0.16

PROC8a: 13.71 mg/kg/day, RCR 0.31

PROC8b: 6.86 mg/kg/day, RCR 0.16

PROC8b: 0.69 mg/kg/day, RCR 0.02

PROC15: 0.34 mg/kg/day, RCR 0.01

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

PROC1: 0.01 ppm, RCR 0.00

PROC1: 10 ppm, RCR 0.10

PROC2: 50 ppm, RCR 0.49

PROC2: 10 ppm, RCR 0.10

PROC3: 100 ppm, RCR 0.98

PROC4: 30 ppm, RCR 0.30

PROC8a: 50 ppm, RCR 0.49

PROC8b: 45 ppm, RCR 0.44

PROC8b: 15 ppm, RCR 0.15

PROC15: 50 ppm, RCR 0.49

Environment

ERC1: Fresh water 0.0028 mg/L, RCR 0.001381

ECR1: Freshwater sediment 0.0126 mg/kg dwt, RCR 0.001383

ERC1: Sea water 0.0002 g/L, RCR 0.001194

ERC1: Sea sediment 0.0010 mg/kg dwt, RCR 0.001201

ERC1: Soil 0.0021 mg/kg dwt, RCR 0.003136

ERC4: Fresh water 0.0028 mg/L, RCR 0.001381

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ERC4: Freshwater sediment 0.0126 mg/kg dwt, RCR 0.001383

ERC4: Sea water 0.0002 mg/L, RCR 0.001194

ERC4: Sea sediment 0.0010 mg/kg dwt, RCR 0.001201

ERC4: Soil 0.0021 mg/kg dwt, RCR 0.003136

- **Consumer** The exposure estimation was carried out in accordance with ECETOC TRA.
- **4 - Guidance for downstream users**
Environment and Health: Used the model ECETOC TRA. If other measures for risk management / operating conditions are adopted, then users should ensure that these risks are at least at equivalent levels.

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Annex: Exposure scenario 2

- **1 - Short title of the exposure scenario** Laboratory use
- **Sector of Use**
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
- **Process category**
PROC10 Roller application or brushing
PROC15 Use as laboratory reagent
- **Environmental release category**
ERC2 Formulation into mixture
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**
Emission days (days/year): 20
8hrs (full working shift).
- **Physical parameters**
- **Physical state** Fluid
- **Concentration of the substance in the mixture**
Raw material.
It covers a percentage of substance in the product up to 100 %
- **Other operational conditions**
- **Other operational conditions affecting environmental exposure** No special measures required.
- **Other operational conditions affecting worker exposure**
Take precautionary measures against static discharge.
Keep away from sources of ignition - No smoking.
- **Other operational conditions affecting consumer exposure during the use of the product**
Not applicable.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)
Ensure that the working area is organised, well lit and ventilated, with enough space to handle spilled product.
Ensure that activities are executed by specialists or authorised personnel only.
- **Technical protective measures**
Provide explosion-proof electrical equipment.
Ensure that suitable extractors are available on processing machines
- **Personal protective measures** Wear suitable gloves (tested to EN374)
- **Measures for consumer protection** Ensure adequate labelling.
- **Environmental protection measures**
- **Air** Volatile components subject to emission controls in the atmosphere.
- **Water**
In case of discharge to a domestic wastewater treatment plant, it is not necessary to treat the wastewater in situ.
Avoid spilling the substance without dissolving residual water in situ or recovering it from it.
- **Soil** No significant emissions to the terrestrial environment are expected.
- **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

To estimate exposures in the workplace has been used ECETOC TRA tool unless otherwise indicated.

Worker (dermal)

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

PROC10: 5.49 mg/kg/day, RCR 0.12

PROC15: 0.34 mg/kg/day, RCR 0.01

Worker (inhalation)

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

PROC10: 75 ppm, RCR 0.74

PROC15: 50 ppm, RCR 0.49

Environment

ERC2: Fresh water 0.604 mg/L, RCR 0.030202

ECR2: Freshwater sediment 0.2765 mg/kg dwt, RCR 0.30250

ERC2: Sea water 0.0060 g/L, RCR 0.030015

ERC2: Sea sediment 0.0275 mg/kg dwt, RCR 0.030195

ERC2: Soil 0.0042 mg/kg dwt, RCR 0.006297

ERC4: Fresh water 0.0604 mg/L, RCR 0.030202

ERC4: Freshwater sediment 0.2765 mg/kg dwt, RCR 0.030250

ERC4: Sea water 0.0060 mg/L, RCR 0.030015

ERC4: Sea sediment 0.0275 mg/kg dwt, RCR 0.030195

ERC4: Soil 0.0042 mg/kg dwt, RCR 0.006297

Consumer The exposure estimation was carried out in accordance with ECETOC TRA.**4 - Guidance for downstream users**

Environment and Health: Used the model ECETOC TRA. If other measures for risk management / operating conditions are adopted, then users should ensure that these risks are at least at equivalent levels.

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.