

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

Printing date 11.01.2015

Version number 59

Revision: 11.01.2015

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

- **1.1 Product identifier**
- **Trade name:** *Diethyl Ether*
- **Article number:** 8106
- **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**
- **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
  - SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- **Process category**  
  - PROC1 Use in closed process, no likelihood of exposure
  - PROC2 Use in closed, continuous process with occasional controlled exposure
  - PROC3 Use in closed batch process (synthesis or formulation)
  - PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
  - PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
  - PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
  - PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
  - PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
  - PROC10 Roller application or brushing
  - PROC15 Use as laboratory reagent
- **Environmental release category**  
  - ERC1 Manufacture of substances
  - ERC2 Formulation of preparations
  - ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
  - ERC8a Wide dispersive indoor use of processing aids in open systems
  - ERC8e Wide dispersive outdoor use of reactive substances in open systems
- **Application of the substance / the mixture :** *For Laboratory, Research or Manufacturing use.*
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
  - Avantor Performance Materials B.V.
  - P.O.Box 1
  - 7400 AA Deventer
  - The Netherlands
- **Informing department:**  
  - E-mail : [pawel.skiba@avantormaterials.com](mailto:pawel.skiba@avantormaterials.com)
  - Avantor Performance Materials Sales Office Tel.: +31(0) 570 687500
- **1.4 Emergency telephone number:**  
  - Environment Health & Safety department
  - during normal opening times (8 am till 5.30 pm) tel: (+31)(0) 570 687500

Tel: (+31) (0)570 - 687500

Fax: (+31) (0)570 - 687574

E-mail : [jtbaker.nl@avantormaterials.com](mailto:jtbaker.nl@avantormaterials.com)

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**  
  - Flam. Liq. 1 H224 Extremely flammable liquid and vapour.
  - Acute Tox. 4 H302 Harmful if swallowed.

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STOT SE 3 H336 May cause drowsiness or dizziness.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**  
Xn; Harmful

R22: Harmful if swallowed.

F+; Extremely flammable

R12: Extremely flammable.

R19-66-67: May form explosive peroxides. Repeated exposure may cause skin dryness or cracking.  
Vapours may cause drowsiness and dizziness.

· **Information concerning particular hazards for human and environment:**

At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.  
Has a narcotising effect.

· **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

· **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/sparks/open flames/hot surfaces. - 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): Remove/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. Designation:**

60-29-7 Diethyl Ether

· **Identification number(s):**

· **EC number:** 200-467-2

· **Index number:** 603-022-00-4

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**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 symptoms.
- **After skin contact** The product is not skin irritating.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing**  
Seek medical treatment.  
Instantly call for doctor.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

**SECTION 5: Firefighting measures**

- **5.1 Extinguishing media**
- **Suitable extinguishing agents**  
Fire-extinguishing powder  
Alcohol-resistant foam  
Carbon dioxide
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear full protective suit.

**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 water bodies.  
Prevent material from reaching sewage system, holes and cellars.  
Inform respective authorities in case product reaches water or sewage system.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose of 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 information on disposal.

**SECTION 7: Handling and storage**

- **7.1 Precautions for safe handling** Open and handle container with care.
- **Information about protection against explosions and fires:**  
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 containers:** Store in cool location.

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- **Information about storage in one common storage facility:** Store away from oxidising agents.
- **Further information about storage conditions:**  
+ 15 °C - +25 °C  
Keep container tightly sealed.  
Do not seal container gastight.  
Store in cool, dry conditions in well sealed containers.  
Protect from heat and direct sunlight.
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

#### · 8.1 Control parameters

- **Components with critical values that require monitoring at the workplace:**

#### 60-29-7 Diethyl Ether

WEL	Short-term value: 620 mg/m <sup>3</sup> , 200 ppm
	Long-term value: 310 mg/m <sup>3</sup> , 100 ppm

#### · DNELs

Oral	Long term/Consumer/Local	15.6 mg/kg (Human)
Dermal	Long term/Consumer/Local	15.6 mg/kg (Human)
	Long term/Worker/Local	44 mg/kg (Human)
Inhalative	Acute/Workers/Systemic	616 mg/m <sup>3</sup> (human)
	Long term/Consumer/Local	54.5 mg/m <sup>3</sup> (Human)
	Long term/Worker/Local	308 mg/m <sup>3</sup> (Human)

- **Additional information:** The lists that were valid during the compilation were used as basis.

#### · 8.2 Exposure controls

##### · Personal protective equipment

##### · General protective and hygienic measures

- Keep away from foodstuffs, beverages and food.
- Wash hands during breaks and at the end of the work.

##### · Breathing equipment:

- Not necessary if room is well-ventilated.
- Use breathing protection only when aerosol or mist is formed.
- Filter AX.

##### · 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

- PVA 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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

##### · Eye protection: Tightly sealed safety glasses.

##### · Body protection: Protective work clothing.

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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
· Smell:	Sweetish
· Odour threshold:	Not determined.

· pH-value: Not determined.

##### · Change in condition

· Melting point/Melting range:	-116.3 °C
· Boiling point/Boiling range:	35 °C
· Flash point:	-45 °C

· Inflammability (solid, gaseous): Not applicable.

· Ignition temperature: 170 °C

· Decomposition temperature: Not determined.

· Self-inflammability: Not determined.

· Danger of explosion: May form explosive peroxides.

· Critical values for explosion: -

· Lower:	1.7 Vol %
· Upper:	48 Vol %

· Steam pressure at 20 °C: 587 hPa

· Density at 20 °C: 0.71 g/cm<sup>3</sup>

· 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

#### · 10.2 Chemical stability

· Thermal decomposition / conditions to be avoided: Heat, boiling temperatures.

#### · 10.3 Possibility of hazardous reactions

Possible formation of peroxide

Reacts with oxidizing agents

· 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.

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

Oral	LD50	1215 mg/kg (rat)
	LC50/72h	73000 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitisation:** No sensitizing effect known.


**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 (D) 1 (Assessment by list): slightly hazardous for water.  
Do not allow undiluted product or large quantities of it to reach ground water, water bodies 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 of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

· <b>14.1 UN-Number</b>	UN1155
· <b>ADR, IMDG, IATA</b>	
· <b>14.2 UN proper shipping name</b>	1155 DIETHYL ETHER (ETHYL ETHER)
· <b>ADR</b>	DIETHYL ETHER (ETHYL ETHER)
· <b>IMDG, IATA</b>	
· <b>14.3 Transport hazard class(es)</b>	
· <b>ADR, IMDG, IATA</b>	
	
· <b>Class</b>	3 Flammable liquids.
· <b>Label</b>	3

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· <b>14.4 Packing group</b> · <b>ADR, IMDG, IATA</b>	<i>I</i>
· <b>14.5 Environmental hazards:</b> · <b>Marine pollutant:</b>	<i>No</i>
· <b>14.6 Special precautions for user</b> · <b>Kemler Number:</b>	<i>Warning: Flammable liquids.</i> <i>33</i>
· <b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	<i>Not applicable.</i>
· <b>Transport/Additional information:</b>	
· <b>ADR</b> · <b>Limited quantities (LQ)</b> · <b>Excepted quantities (EQ)</b>	<i>0</i> <i>Code: E3</i> <i>Maximum net quantity per inner packaging: 30 ml</i> <i>Maximum net quantity per outer packaging: 300 ml</i>
· <b>Tunnel restriction code</b>	<i>D/E</i>
· <b>IMDG</b> · <b>Limited quantities (LQ)</b> · <b>Excepted quantities (EQ)</b>	<i>0</i> <i>Code: E3</i> <i>Maximum net quantity per inner packaging: 30 ml</i> <i>Maximum net quantity per outer packaging: 300 ml</i>
· <b>UN "Model Regulation":</b>	<i>UN1155, DIETHYL ETHER (ETHYL ETHER), 3, I</i>

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Labelling according to Regulation (EC) No 1272/2008**  
*The substance is classified and labelled according to the CLP regulation.*
- **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/sparks/open flames/hot surfaces. - 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): Remove/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.*
- **15.2 Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

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**SECTION 16: Other information**

*These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing data specification sheet:** EHS

· **Contact:** Paweł Skiba

· **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)*

*IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)*

*ICAO: International Civil Aviation Organisation*

*ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)*

*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)*

*DNEL: Derived No-Effect Level (REACH)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*Flam. Liq. 1: Flammable liquids, Hazard Category 1*

*Acute Tox. 4: Acute toxicity, Hazard Category 4*

*STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3*

· **\* Data compared to the previous version altered.**

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