

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/15/2022

Reviewed on 03/15/2022

## 1 Identification

- **Product identifier**
- **Trade name:** 2-Methyl Butane, Reagent
- **Article number:** 18550
- **CAS Number:**  
78-78-4
- **EC number:**  
201-142-8
- **Index number:**  
601-006-00-1
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 1

H224 Extremely flammable liquid and vapor.



GHS08 Health hazard

Aspiration Hazard 1

H304 May be fatal if swallowed and enters airways.



GHS07

Specific Target Organ Toxicity - Single Exposure 3 H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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**Trade name: 2-Methyl Butane, Reagent**

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· **Hazard statements**

*Extremely flammable liquid and vapor.  
May cause drowsiness or dizziness.  
May be fatal if swallowed and enters airways.*

· **Precautionary statements**

*Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ventilating/lighting/equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Immediately call a poison center/doctor.  
Do NOT induce vomiting.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Call a poison center/doctor if you feel unwell.  
In case of fire: Use CO<sub>2</sub>, powder or water spray to extinguish.  
Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

## 3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **CAS No. Description**

78-78-4 2-Methyl Butane, Reagent

· **Identification number(s)**

· **EC number:** 201-142-8

· **Index number:** 601-006-00-1

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Trade name: 2-Methyl Butane, Reagent

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## 4 First-aid measures

- **Description of first aid measures**
- **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:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **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.
- **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.
- **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.
- **Protective Action Criteria for Chemicals**
- **PAC-1:** 3000\* ppm
- **PAC-2:** 33000\*\*\* ppm
- **PAC-3:** 200000\*\*\* ppm

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.

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**Trade name: 2-Methyl Butane, Reagent**

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- **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 receptacle tightly sealed.
  - Do not gas tight seal receptacle.
  - Store in cool, dry conditions in well sealed receptacles.
  - Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

**78-78-4 2-Methyl Butane, Reagent**

PEL Long-term value: 2950 mg/m<sup>3</sup>, 1000 ppm

TLV Long-term value: 1000 ppm

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

- **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.

- **Breathing equipment:** 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

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## 9 Physical and chemical properties

· <b>Information on basic physical and chemical properties</b>	
· <b>General Information</b>	
· <b>Appearance:</b>	
· <b>Form:</b>	Fluid
· <b>Color:</b>	Colorless
· <b>Odor:</b> Characteristic	
· <b>Odor threshold:</b> Not determined.	
· <b>pH-value:</b> Not determined.	
· <b>Change in condition</b>	
· <b>Melting point/Melting range:</b>	-159.9 °C (-255.8 °F)
· <b>Boiling point/Boiling range:</b>	27.9 °C (82.2 °F)
· <b>Flash point:</b> -51 °C (-59.8 °F)	
· <b>Flammability (solid, gaseous):</b> Not flammable.	
· <b>Ignition temperature:</b> 420 °C (788 °F)	
· <b>Decomposition temperature:</b> Not determined.	
· <b>Auto igniting:</b> Not determined.	
· <b>Danger of explosion:</b> Product is not explosive. However, formation of explosive air/vapor mixtures are possible.	
· <b>Explosion limits:</b>	
· <b>Lower:</b>	1.4 Vol %
· <b>Upper:</b>	7.6 Vol %
· <b>Vapor pressure at 20 °C (68 °F):</b> 793 hPa (594.8 mm Hg)	
· <b>Density at 20 °C (68 °F):</b> 0.62 g/cm <sup>3</sup> (5.1739 lbs/gal)	
· <b>Relative density</b> Not determined.	
· <b>Vapor density</b> Not determined.	
· <b>Evaporation rate</b> Not determined.	
· <b>Solubility in / Miscibility with</b>	
· <b>Water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient (n-octanol/water):</b> Not determined.	
· <b>Viscosity:</b>	
· <b>Dynamic at 20 °C (68 °F):</b>	2.14 mPas
· <b>Kinematic:</b>	Not determined.
· <b>Other information</b> No further relevant information available.	

## 10 Stability and reactivity

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

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**Trade name: 2-Methyl Butane, Reagent**

· **Hazardous decomposition products:** No dangerous decomposition products known.

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## 11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** No irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)** Substance is not listed.

· **NTP (National Toxicology Program)** Substance is not listed.

· **OSHA-Ca (Occupational Safety Health Administration)** Substance is not listed.

## 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Ecotoxicological effects:**

· **Remark:** Toxic for fish

· **Additional ecological information:**

· **General notes:**

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

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

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

· **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.

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## 14 Transport information

<ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	<p style="margin: 0;">UNI265</p>	
<ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG, IATA</b></li> </ul>	<p style="margin: 0;">Pentanes 1265 PENTANES, ENVIRONMENTALLY HAZARDOUS PENTANES</p>	
<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>	<div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	<p style="margin: 0;">3 Flammable liquids 3</p>
<ul style="list-style-type: none"> <li>· <b>ADR</b></li> </ul>	<div style="text-align: center; margin: 10px 0;">   </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	<p style="margin: 0;">3 Flammable liquids 3</p>
<ul style="list-style-type: none"> <li>· <b>IMDG, IATA</b></li> </ul>	<div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	<p style="margin: 0;">3 Flammable liquids 3</p>
<ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	<p style="margin: 0;">I</p>	
<ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> <li>· <b>Special marking (ADR):</b></li> </ul>	<p style="margin: 0;">Environmentally hazardous substance, liquid Symbol (fish and tree)</p>	
<ul style="list-style-type: none"> <li>· <b>Special precautions for user</b></li> <li>· <b>Hazard identification number (Kemler code):</b></li> <li>· <b>EMS Number:</b></li> <li>· <b>Stowage Category</b></li> </ul>	<p style="margin: 0;">Warning: Flammable liquids 33 3-07 E</p>	
<ul style="list-style-type: none"> <li>· <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b></li> </ul>	<p style="margin: 0;">Not applicable.</p>	
<ul style="list-style-type: none"> <li>· <b>Transport/Additional information:</b></li> <li>· <b>DOT</b></li> <li>· <b>Quantity limitations</b></li> </ul>	<p style="margin: 0;">On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L</p>	

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· <b>ADR</b> · <b>Excepted quantities (EQ)</b>	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>IMDG</b> · <b>Limited quantities (LQ)</b> · <b>Excepted quantities (EQ)</b>	0 Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>UN "Model Regulation":</b>	UN 1265 PENTANES, 3, I, ENVIRONMENTALLY HAZARDOUS

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.
- **Sara**
- **Section 355 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** ACTIVE
- **Hazardous Air Pollutants** Substance is not listed.
- **Proposition 65**
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value)** Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02   GHS07   GHS08

- **Signal word** Danger
- **Hazard statements**  
Extremely flammable liquid and vapor.  
May cause drowsiness or dizziness.  
May be fatal if swallowed and enters airways.
- **Precautionary statements**  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ventilating/lighting/equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area.

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**Trade name: 2-Methyl Butane, Reagent**

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*Wear protective gloves/protective clothing/eye protection/face protection.*

*If swallowed: Immediately call a poison center/doctor.*

*Do NOT induce vomiting.*

*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Call a poison center/doctor if you feel unwell.*

*In case of fire: Use CO<sub>2</sub>, powder or water spray to extinguish.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store in a well-ventilated place. Keep cool.*

*Store locked up.*

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

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 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.*

· **Contact:**

· **Date of preparation / last revision** 03/15/2022 / -

· **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*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

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

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety Health*

**TLV: Threshold Limit Value**

**PEL: Permissible Exposure Limit**

**REL: Recommended Exposure Limit**

**Flammable Liquids 1: Flammable liquids – Category 1**

**Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3**

**Aspiration Hazard 1: Aspiration hazard – Category 1**

# Safety Data Sheet

## according to WHS Regulations

Printing date 15.03.2022

Revision: 15.03.2022

### 1 Identification

- **Product identifier**
- **Trade name:** 2-Methyl Butane, Reagent
- **Article number:** 18550
- **CAS Number:**  
78-78-4
- **EC number:**  
201-142-8
- **Index number:**  
601-006-00-1
- **Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: [info@emsdiasum.com](mailto:info@emsdiasum.com)  
[www.emsdiasum.com](http://www.emsdiasum.com)
- ProSciTech Pty Ltd  
11 Carlton Street, Kirwan QLD 4817 Australia  
Telephone Number: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)  
Emergency Contact: (07) 4773 9444 - 8:30am - 5:00pm, Monday to Friday (excluding Public Holidays)  
Website: [ems.proscitech.com](http://ems.proscitech.com)
- Emgrid Australia Pty. Ltd.  
P.O. Box 118  
The Patch VIC 3792  
Australia  
Tel: 03 9752 1785  
Fax: 03 9752 1784  
Website: [www.emgrid.com.au](http://www.emgrid.com.au)
- **Further information obtainable from:** Product safety department
- **Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### 2 Hazard(s) Identification

- **Classification of the substance or mixture**



GHS02 flame

Flam. Liq. 1 H224 Extremely flammable liquid and vapour.



GHS08 health hazard

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

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AU

# Safety Data Sheet

## according to WHS Regulations

Printing date 15.03.2022

Revision: 15.03.2022

Trade name: 2-Methyl Butane, Reagent

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GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**

- **GHS label elements**

The substance is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS02

GHS07

GHS08

- **Signal word** *Danger*

- **Hazard statements**

*Extremely flammable liquid and vapour.*

*May cause drowsiness or dizziness.*

*May be fatal if swallowed and enters airways.*

- **Precautionary statements**

*Keep away from heat/sparks/open flames/hot surfaces. No smoking.*

*Ground/bond container and receiving equipment.*

*Use explosion-proof electrical/ventilating/lighting equipment.*

*Use only non-sparking tools.*

*Take precautionary measures against static discharge.*

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

*Use only outdoors or in a well-ventilated area.*

*Wear protective gloves/protective clothing/eye protection/face protection.*

*IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*

*Do NOT induce vomiting.*

*IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.*

*IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.*

*Call a POISON CENTER/doctor if you feel unwell.*

*In case of fire: Use CO<sub>2</sub>, powder or water spray for extinction.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store in a well-ventilated place. Keep cool.*

*Store locked up.*

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

- **Additional information:**

*Repeated exposure may cause skin dryness or cracking.*

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

### 3 Composition and Information on Ingredients

- **Chemical characterisation: Substances**

- **CAS No. Description**

78-78-4 2-Methyl Butane, Reagent

- **Identification number(s)**

- **EC number:** 201-142-8

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# Safety Data Sheet

## according to WHS Regulations

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**Trade name: 2-Methyl Butane, Reagent**

· **Index number:** 601-006-00-1

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### 4 First Aid Measures

- **Description of first aid measures**
- **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:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire Fighting Measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental Release Measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **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.
- **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.
- **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.

### 7 Handling and Storage

- **Handling:**
- **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.

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## Safety Data Sheet according to WHS Regulations

Printing date 15.03.2022

Revision: 15.03.2022

Trade name: 2-Methyl Butane, Reagent

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

### 8 Exposure controls and personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists valid during the making were used as basis.
- **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

### 9 Physical and Chemical Properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

<b>Form:</b>	Fluid
<b>Colour:</b>	Colourless
<b>Odour:</b>	Characteristic
<b>Odour threshold:</b>	Not determined.

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## Safety Data Sheet according to WHS Regulations

Printing date 15.03.2022

Revision: 15.03.2022

Trade name: 2-Methyl Butane, Reagent

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· <b>pH-value:</b>	Not determined.
· <b>Change in condition</b> Melting point/freezing point:	-159.9 °C
Initial boiling point and boiling range:	27.9 °C
· <b>Flash point:</b>	-51 °C
· <b>Flammability (solid, gas):</b>	Not applicable.
· <b>Ignition temperature:</b>	420 °C
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto-ignition temperature:</b>	Not determined.
· <b>Explosive properties:</b>	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· <b>Explosion limits:</b> Lower:	1.4 Vol %
Upper:	7.6 Vol %
· <b>Vapour pressure at 20 °C:</b>	793 hPa
· <b>Density at 20 °C:</b>	0.62 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient: n-octanol/water:</b>	Not determined.
· <b>Viscosity:</b> Dynamic at 20 °C:	2.14 mPas
Kinematic:	Not determined.
· <b>Other information</b>	No further relevant information available.

### 10 Stability and Reactivity

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

### 11 Toxicological Information

- **Information on toxicological effects**
- **Acute toxicity**
- **Primary irritant effect:**
- **Skin corrosion/irritation** No irritant effect.
- **Serious eye damage/irritation** No irritating effect.

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AU

# Safety Data Sheet

## according to WHS Regulations

Printing date 15.03.2022

Revision: 15.03.2022

Trade name: 2-Methyl Butane, Reagent

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- **Respiratory or skin sensitisation** No sensitising effects known.


### 12 Ecological Information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.  
Also poisonous for fish and plankton in water bodies.  
Toxic for aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **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.

### 14 Transport information

- |   |  |
|---|--|
| · <b>UN-Number</b><br>· <b>ADG, IMDG, IATA</b>                                      | UNI265   |
| · <b>UN proper shipping name</b><br>· <b>ADG</b><br>· <b>IMDG, IATA</b>             | 1265 PENTANES, ENVIRONMENTALLY HAZARDOUS<br>PENTANES |
| · <b>Transport hazard class(es)</b><br>· <b>ADG</b>                                 |  |
|  |  |
| · <b>Class</b>  | 3 Flammable liquids.                                 |

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## Safety Data Sheet according to WHS Regulations

Printing date 15.03.2022

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Trade name: 2-Methyl Butane, Reagent

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· <b>Label</b>	3
· <b>IMDG, IATA</b>	
	
· <b>Class</b>	3 Flammable liquids.
· <b>Label</b>	3
· <b>Packing group</b>	
· <b>ADG, IMDG, IATA</b>	I
· <b>Environmental hazards:</b>	Environmentally hazardous substance, liquid
· <b>Special marking (ADG):</b>	Symbol (fish and tree)
· <b>Special precautions for user</b>	Warning: Flammable liquids.
· <b>Hazard identification number (Kemler code):</b>	33
· <b>EMS Number:</b>	3-07
· <b>Stowage Category</b>	E
· <b>Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADG</b>	
· <b>Limited quantities (LQ)</b>	0
· <b>Excepted quantities (EQ)</b>	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>Transport category</b>	1
· <b>Tunnel restriction code</b>	D/E
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	0
· <b>Excepted quantities (EQ)</b>	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>UN "Model Regulation":</b>	UN 1265 PENTANES, 3, 1, ENVIRONMENTALLY HAZARDOUS

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Australian Inventory of Industrial Chemicals** Substance is listed.
- **Standard for the Uniform Scheduling of Medicines and Poisons** Substance is not listed.
- **Australia: Priority Existing Chemicals** Substance is not listed.
- **GHS label elements**  
The substance is classified and labelled according to the Globally Harmonised System (GHS).

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# Safety Data Sheet

## according to WHS Regulations

Printing date 15.03.2022

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Trade name: 2-Methyl Butane, Reagent

(Contd. of page 7)

· **Hazard pictograms**

GHS02   GHS07   GHS08

· **Signal word** *Danger*· **Hazard statements***Extremely flammable liquid and vapour.**May cause drowsiness or dizziness.**May be fatal if swallowed and enters airways.*· **Precautionary statements***Keep away from heat/sparks/open flames/hot surfaces. No smoking.**Ground/bond container and receiving equipment.**Use explosion-proof electrical/ventilating/lighting equipment.**Use only non-sparking tools.**Take precautionary measures against static discharge.**Avoid breathing dust/fume/gas/mist/vapours/spray.**Use only outdoors or in a well-ventilated area.**Wear protective gloves/protective clothing/eye protection/face protection.**IF SWALLOWED: Immediately call a POISON CENTER/ doctor.**Do NOT induce vomiting.**IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.**IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.**Call a POISON CENTER/doctor if you feel unwell.**In case of fire: Use CO2, powder or water spray for extinction.**Store in a well-ventilated place. Keep container tightly closed.**Store in a well-ventilated place. Keep cool.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*· **Directive 2012/18/EU**· **Named dangerous substances - ANNEX I** *Substance is not listed.*· **Seveso category***P5a FLAMMABLE LIQUIDS**E2 Hazardous to the Aquatic Environment*· **Qualifying quantity (tonnes) for the application of lower-tier requirements** *10 t*· **Qualifying quantity (tonnes) for the application of upper-tier requirements** *50 t*· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

## 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.*

· **Contact:**· **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**EINECS: European Inventory of Existing Commercial Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Flam. Liq. 1: Flammable liquids – Category 1*

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**Safety Data Sheet**  
according to WHS Regulations

Printing date 15.03.2022

Revision: 15.03.2022

**Trade name: 2-Methyl Butane, Reagent**

*STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*  
*Asp. Tox. 1: Aspiration hazard – Category 1*

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AU

# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

### 1 Identification

- **Product identifier**
- **Trade name:** 2-Methyl Butane, Reagent
- **Article number:** 18550
- **CAS Number:**  
78-78-4
- **EC number:**  
201-142-8
- **Index number:**  
601-006-00-1
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com
- **Information department:** Product safety department
- **Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### 2 Hazard identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids - Category 1

H224 Extremely flammable liquid and vapour.



GHS08 Health hazard

Aspiration Hazard - Category 1

H304 May be fatal if swallowed and enters airways.



GHS07

Specific Target Organ Toxicity - Single Exposure -  
Category 3

H336 May cause drowsiness or dizziness.

- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02



GHS07



GHS08

- **Signal word** Danger

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# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

**Trade name: 2-Methyl Butane, Reagent**

(Contd. of page 1)

- **Hazard statements**

*Extremely flammable liquid and vapour.  
May cause drowsiness or dizziness.  
May be fatal if swallowed and enters airways.*

- **Precautionary statements**

*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Ground and bond container and receiving equipment.  
Use explosion-proof [electrical/ventilating/lighting] equipment.  
Use non-sparking tools.  
Take actions to prevent static discharges.  
Avoid breathing dust/fume/gas/mist/vapours/spray.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Immediately call a poison center/doctor.  
Do NOT induce vomiting.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Call a poison center/doctor if you feel unwell.  
In case of fire: Use CO<sub>2</sub>, powder or water spray to extinguish.  
Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
Dispose of contents/container in accordance with local/regional/national/international regulations.*

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



### 3 Composition/Information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
78-78-4 2-Methyl Butane, Reagent
- **Identification number(s)**
- **EC number:** 201-142-8
- **Index number:** 601-006-00-1

### 4 First-aid measures

- **Description of first aid measures**
- **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:** If symptoms persist consult doctor.

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# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

**Trade name: 2-Methyl Butane, Reagent**

(Contd. of page 2)

- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **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.
- **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.
- **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.

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Open and handle receptacle with care.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **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 receptacle tightly sealed.  
Do not gas tight seal receptacle.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

CA

(Contd. on page 4)

# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

Trade name: 2-Methyl Butane, Reagent

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### 8 Exposure controls/ Personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

**78-78-4 2-Methyl Butane, Reagent**

EL TWA: 1000 ppm

EV STEL: 2,210 mg/m<sup>3</sup>, 750 ppm

TWA: 1,770 mg/m<sup>3</sup>, 600 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **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.

· **Breathing equipment:** 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

### 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Fluid

Color: Colorless

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: -159.9 °C

Boiling point/Boiling range: 27.9 °C

· **Flash point:** -51 °C

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## Safety Data Sheet according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

Trade name: 2-Methyl Butane, Reagent

(Contd. of page 4)

· <b>Flammability (solid, gaseous):</b>	Not flammable.
· <b>Ignition temperature:</b>	420 °C
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto igniting:</b>	Not determined.
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>Explosion limits:</b>	
Lower:	1.4 Vol %
Upper:	7.6 Vol %
· <b>Vapor pressure at 20 °C:</b>	793 hPa
· <b>Density at 20 °C:</b>	0.62 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
Dynamic at 20 °C:	2.14 mPas
Kinematic:	Not determined.
· <b>Other information</b>	No further relevant information available.

### 10 Stability and reactivity

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

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.

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CA

# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

Trade name: 2-Methyl Butane, Reagent

(Contd. of page 5)

· **NTP (National Toxicology Program)** Substance is not listed.


### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**  
*Water hazard class 2 (Assessment by list): hazardous for water*  
*Do not allow product to reach ground water, water course or sewage system.*  
*Danger to drinking water if even small quantities leak into the ground.*  
*Also poisonous for fish and plankton in water bodies.*  
*Toxic for aquatic organisms*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **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.

### 14 Transport information

- |   |  |
|---|--|
| <b>UN-Number</b>  | UNI265                                   |
| <b>DOT/TDG, ADR, IMDG, IATA</b>   |  |
| <b>UN proper shipping name</b>  | Pentanes                                 |
| <b>DOT/TDG</b>  | 1265 PENTANES, ENVIRONMENTALLY HAZARDOUS |
| <b>ADR</b>  | PENTANES                                 |
| <b>IMDG, IATA</b>   |  |
| <b>Transport hazard class(es)</b>   |  |
| <b>DOT/TDG (Transport dangerous goods):</b>   |  |
|  |  |
| <b>Class</b>  | 3 Flammable liquids                      |

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# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

Trade name: 2-Methyl Butane, Reagent

(Contd. of page 6)

· <b>Label</b>	3
· <b>ADR</b>	
· <b>Class</b>	3 Flammable liquids
· <b>Label</b>	3
· <b>IMDG, IATA</b>	
· <b>Class</b>	3 Flammable liquids
· <b>Label</b>	3
· <b>Packing group</b>	
· <b>DOT/TDG, ADR, IMDG, IATA</b>	I
· <b>Environmental hazards:</b>	Environmentally hazardous substance, liquid
· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>Special precautions for user</b>	Warning: Flammable liquids
· <b>Hazard identification number (Kemler code):</b>	33
· <b>EMS Number:</b>	3-07
· <b>Stowage Category</b>	E
· <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>DOT/TDG</b>	
· <b>Quantity limitations</b>	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	0
· <b>Excepted quantities (EQ)</b>	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>UN "Model Regulation":</b>	UN 1265 PENTANES, 3, I, ENVIRONMENTALLY HAZARDOUS

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.
- **Sara**
- **Section 355 (extremely hazardous substances):** Substance is not listed.

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-CA

# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

**Trade name: 2-Methyl Butane, Reagent**

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- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** ACTIVE
- **Canadian substance listings:**
- **Canadian Domestic Substances List (DSL)** Substance is listed.
- **Canadian Non-Domestic Substances List (NDSL)** Substance is not listed.
- **Canadian Ingredient Disclosure list (limit 0.1%)** Substance is not listed.
- **Canadian Ingredient Disclosure list (limit 1%)** Substance is not listed.
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02    GHS07    GHS08

- **Signal word** *Danger*
- **Hazard statements**
- Extremely flammable liquid and vapour.*
- May cause drowsiness or dizziness.*
- May be fatal if swallowed and enters airways.*
- **Precautionary statements**
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*
- Ground and bond container and receiving equipment.*
- Use explosion-proof [electrical/ventilating/lighting] equipment.*
- Use non-sparking tools.*
- Take actions to prevent static discharges.*
- Avoid breathing dust/fume/gas/mist/vapours/spray.*
- Use only outdoors or in a well-ventilated area.*
- Wear protective gloves/protective clothing/eye protection/face protection.*
- If swallowed: Immediately call a poison center/doctor.*
- Do NOT induce vomiting.*
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.*
- Call a poison center/doctor if you feel unwell.*
- In case of fire: Use CO<sub>2</sub>, powder or water spray to extinguish.*
- Store in a well-ventilated place. Keep container tightly closed.*
- Store in a well-ventilated place. Keep cool.*
- Store locked up.*
- Dispose of contents/container in accordance with local/regional/national/international regulations.*
- **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

### 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.*

- **Contact:**
- **Date of the latest revision of the safety data sheet** 03/15/2022 / -
- **Abbreviations and acronyms:**
- IMDG: International Maritime Code for Dangerous Goods*
- DOT: US Department of Transportation*
- IATA: International Air Transport Association*
- EINECS: European Inventory of Existing Commercial Chemical Substances*
- CAS: Chemical Abstracts Service (division of the American Chemical Society)*
- NFPA: National Fire Protection Association (USA)*
- HMIS: Hazardous Materials Identification System (USA)*

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**Safety Data Sheet**  
according to HPR, Schedule 1

Printing date 03/15/2022

Reviewed on 03/15/2022

**Trade name: 2-Methyl Butane, Reagent**

*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*

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CA

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

- **1.1 Product identifier**
- **Trade name:** 2-Methyl Butane, Reagent
- **Article number:** 18550
- **CAS Number:**  
78-78-4
- **EC number:**  
201-142-8
- **Index number:**  
601-006-00-1
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



flame

Flam. Liq. 1      H224 Extremely flammable liquid and vapour.



health hazard

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



environment

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



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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Trade name: 2-Methyl Butane, Reagent

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## · Hazard pictograms

· Signal word *Danger*

## · Hazard statements

H224 *Extremely flammable liquid and vapour.*H336 *May cause drowsiness or dizziness.*H304 *May be fatal if swallowed and enters airways.*H411 *Toxic to aquatic life with long lasting effects.*

## · Precautionary statements

P210      *Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*P301+P310      *IF SWALLOWED: Immediately call a POISON CENTER/ doctor.*P331      *Do NOT induce vomiting.*P303+P361+P353 *IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*P405      *Store locked up.*P501      *Dispose of contents/container in accordance with local/regional/national/international regulations.*

## · Additional information:

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*

78-78-4 2-Methyl Butane, Reagent

## · Identification number(s)

· EC number: 201-142-8

· Index number: 601-006-00-1

## SECTION 4: First aid measures

· 4.1 *Description of first aid measures*· **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:** *If symptoms persist consult 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.*

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### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, 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.

### SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:** No further data; see item 7.

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

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WEL Long-term value: 1800 mg/m<sup>3</sup>, 600 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:** Characteristic

· **Odour threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/freezing point: -159.9 °C

Initial boiling point and boiling range: 27.9 °C

· **Flash point:** -51 °C

· **Flammability (solid, gas):** Not applicable.

· **Ignition temperature:** 420 °C

· **Decomposition temperature:** Not determined.

· **Auto-ignition temperature:** Not determined.

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· <b>Explosive properties:</b>	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· <b>Explosion limits:</b>	
Lower:	1.4 Vol %
Upper:	7.6 Vol %
· <b>Vapour pressure at 20 °C:</b>	793 hPa
· <b>Density at 20 °C:</b>	0.62 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient: n-octanol/water:</b>	Not determined.
· <b>Viscosity:</b>	
Dynamic at 20 °C:	2.14 mPas
Kinematic:	Not determined.
· <b>9.2 Other information</b>	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** Based on available data, the classification criteria are not met.
- **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.
- **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** 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.

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- **Aspiration hazard**  
May be fatal if swallowed and enters airways.


### 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.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.  
Also poisonous for fish and plankton in water bodies.  
Toxic for aquatic organisms
- **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** UN1265
- **14.2 UN proper shipping name**
- **ADR** 1265 PENTANES, ENVIRONMENTALLY HAZARDOUS
- **IMDG, IATA** PENTANES
- **14.3 Transport hazard class(es)**
- **ADR**
- 
- **Class** 3 Flammable liquids.

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· <b>Label</b>	3
· <b>IMDG, IATA</b>	
	
· <b>Class</b>	3 Flammable liquids.
· <b>Label</b>	3
· <b>14.4 Packing group</b> · <b>ADR, IMDG, IATA</b>	I
· <b>14.5 Environmental hazards:</b> · <b>Special marking (ADR):</b>	Environmentally hazardous substance, liquid Symbol (fish and tree)
· <b>14.6 Special precautions for user</b> · <b>Hazard identification number (Kemler code):</b> · <b>EMS Number:</b> · <b>Stowage Category</b>	Warning: Flammable liquids. 33 3-07 E
· <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b> · <b>Limited quantities (LQ)</b> · <b>Excepted quantities (EQ)</b>	0 Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>Transport category</b> · <b>Tunnel restriction code</b>	1 D/E
· <b>IMDG</b> · <b>Limited quantities (LQ)</b> · <b>Excepted quantities (EQ)</b>	0 Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>UN "Model Regulation":</b>	UN 1265 PENTANES, 3, I, ENVIRONMENTALLY HAZARDOUS

### 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  
E2 Hazardous to the Aquatic Environment
- Qualifying quantity (tonnes) for the application of lower-tier requirements 10 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements 50 t

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**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not 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.*

**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)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Flam. Liq. 1: Flammable liquids – Category 1*

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

*Asp. Tox. 1: Aspiration hazard – Category 1*

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

GB

# Veiligheidsinformatieblad

volgens 1907/2006/EG, Artikel 31

datum van de druk: 15.03.2022

Herziening van: 15.03.2022

## RUBRIEK 1: Identificatie van de stof of het mengsel en van de vennootschap/onderneming

### · 1.1 Productidentificatie

· **Handelsnaam:** isopentaan

· **Artikelnummer:** 18550

· **CAS-nummer:**

78-78-4

· **EC-nummer:**

201-142-8

· **Catalogusnummer:**

601-006-00-1

### · 1.2 Relevant geïdentificeerd gebruik van de stof of het mengsel en ontraden gebruik

Geen verdere relevante informatie verkrijgbaar.

· **Toepassing van de stof / van de bereiding** Laboratoriumchemicaliën

### · 1.3 Details betreffende de verstrekker van het veiligheidsinformatieblad

· **Fabrikant/leverancier:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: [info@emsdiasum.com](mailto:info@emsdiasum.com)

[www.emsdiasum.com](http://www.emsdiasum.com)

Aurion

Binnenhaven 5

6709 PD Wageningen

The Netherlands

Tel: 31 317 415094

Fax: 31 317 415955

email: [info@aurion.nl](mailto:info@aurion.nl)

· **Inlichtingengevende sector:** Product safety department

· **1.4 Telefoonnummer voor noodgevallen:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

## RUBRIEK 2: Identificatie van de gevaren

### · 2.1 Indeling van de stof of het mengsel

· **Indeling overeenkomstig Verordening (EG) nr. 1272/2008**



GHS02 vlam

Flam. Liq. 1      H224 Zeer licht ontvlambare vloeistof en damp.



GHS08 gezondheidsgevaar

Asp. Tox. 1      H304 Kan dodelijk zijn als de stof bij inslikken in de luchtwegen terechtkomt.



GHS09 milieu

Aquatic Chronic 2 H411 Giftig voor in het water levende organismen, met langdurige gevolgen.

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(Vervolg van blz. 1)



GHS07

STOT SE 3 H336 Kan slaperigheid of duizeligheid veroorzaken.

- **2.2 Etiketteringselementen**
- **Etikettering overeenkomstig Verordening (EG) nr. 1272/2008**  
De stof/product is geclassificeerd en geëtiketteerd volgens de CLP-verordening.
- **Gevapenpictogrammen**



GHS02

GHS07

GHS08

GHS09

- **Signaalwoord Gevaar**
- **Gevapenaanduidingen**  
H224 Zeer licht ontvlambare vloeistof en damp.  
H336 Kan slaperigheid of duizeligheid veroorzaken.  
H304 Kan dodelijk zijn als de stof bij inslikken in de luchtwegen terechtkomt.  
H411 Giftig voor in het water levende organismen, met langdurige gevolgen.
- **Veiligheidsaanbevelingen**  
P210 Verwijderd houden van warmte, hete oppervlakken, vonken, open vuur en andere ontstekingsbronnen. Niet roken.  
P301+P310 NA INSLIKKEN: onmiddellijk een ANTIGIFCENTRUM/arts raadplegen.  
P331 GEEN braken opwekken.  
P303+P361+P353 BIJ CONTACT MET DE HUID (of het haar): verontreinigde kleding onmiddellijk uittrekken. Huid met water afspoelen [of afdouchen].  
P405 Achter slot bewaren.  
P501 De inhoud en de verpakking verwerken volgens de plaatselijke/regionale/nationale/internationale voorschriften.
- **Aanvullende gegevens:**  
EUH066 Herhaalde blootstelling kan een droge of een gebarsten huid veroorzaken.
- **2.3 Andere gevaren**
- **Resultaten van PBT- en zPzB-beoordeling**
- **PBT:** Niet bruikbaar.
- **zPzB:** Niet bruikbaar.

### RUBRIEK 3: Samenstelling en informatie over de bestanddelen

- **3.1 Chemische karakterisering: Stoffen**
- **CAS-Nr. omschrijving**  
78-78-4 isopentaaan
- **Identificatienummer(s)**
- **EC-nummer:** 201-142-8
- **Catalogusnummer:** 601-006-00-1

### RUBRIEK 4: Eerstehulpmaatregelen

- **4.1 Beschrijving van de eerstehulpmaatregelen**
- **Na het inademen:** Frisse lucht toedienen; bij klachten arts ontbieden.
- **Na huidcontact:** Over het algemeen is het produkt niet prikkelend voor de huid

(Vervolg op blz. 3)

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(Vervolg van blz. 2)

- **Na oogcontact:** Ogen bij geopend ooglid meerdere minuten met stromend water spoelen
- **Na inslikken:** Als de klachten niet minderen, een arts raadplegen
- **4.2 Belangrijkste acute en uitgestelde symptomen en effecten** Geen verdere relevante informatie verkrijgbaar.
- **4.3 Vermelding van de vereiste onmiddellijke medische verzorging en speciale behandeling**  
Geen verdere relevante informatie verkrijgbaar.

### RUBRIEK 5: Brandbestrijdingsmaatregelen

- **5.1 Blusmiddelen**
- **Geschikte blusmiddelen:**  
CO<sub>2</sub>, bluspoeder of waterstraal. Grotere brand met waterstraal bestrijden of met schuim, dat tegen alcohol bestand is.
- **Blusmiddelen die uit veiligheidsoogpunt niet geschikt zijn:** Krachtige waterstraal
- **5.2 Speciale gevaren die door de stof of het mengsel worden veroorzaakt**  
Geen verdere relevante informatie verkrijgbaar.
- **5.3 Advies voor brandweerlieden**
- **Speciale beschermende kleding:** Geen bijzondere maatregelen nodig.

### RUBRIEK 6: Maatregelen bij het accidenteel vrijkomen van de stof of het mengsel

- **6.1 Persoonlijke voorzorgsmaatregelen, beschermingsmiddelen en noodprocedures**  
Beschermende kleding aantrekken. Niet beschermde personen op afstand houden.
- **6.2 Milieuvoorzorgsmaatregelen:**  
Mag niet in riolering of afvalwater terecht komen.  
Bij indringen in afvalwater of riolering moet de bevoegde instantie gewaarschuwd worden.  
Niet in de riolering/het oppervlaktewater/het grondwater laten terecht komen.
- **6.3 InsluTINGS- en reinigingsmethoden en -materiaal:**  
Met vloeistofbindend materiaal (zand, bergmeel, zuurbinder, universele binder, zaagmeel) opnemen.  
Besmet materiaal zoals afval volgens punt 13 verwijderen.  
Voor voldoende ventilatie zorgen.
- **6.4 Verwijzing naar andere rubrieken**  
Informatie inzake veilig gebruik - zie hoofdstuk 7.  
Informatie inzake persoonlijke beschermingsuitrusting - zie hoofdstuk 8.  
Informatie inzake berging - zie hoofdstuk 13.

### RUBRIEK 7: Hantering en opslag

- **7.1 Voorzorgsmaatregelen voor het veilig hanteren van de stof of het mengsel**  
Tanks voorzichtig openen en behandelen.
- **Informatie m.b.t. brand- en ontploffingsgevaar:**  
Onststekingsbronnen op afstand houden - niet roken.  
Maatregelen treffen tegen ontlading van statische elektriciteit.
- **7.2 Voorwaarden voor een veilige opslag, met inbegrip van incompatibele producten**
- **Opslag:**
- **Eisen ten opzichte van opslagruimte en tanks:** Op een koele plaats bewaren.
- **Informatie m.b.t. gezamenlijke opslag:** Niet noodzakelijk.
- **Verdere inlichtingen over eisen m.b.t. de opslag:**  
Tanks ondoordringbaar gesloten houden.  
Tanks niet gasdicht afsluiten.  
Koel en droog bewaren in goed gesloten vaten.  
Tegen hitte en directe zonnestralen beschermen.

(Vervolg op blz. 4)

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- **7.3 Specifiek eindgebruik** Geen verdere relevante informatie verkrijgbaar.

### RUBRIEK 8: Maatregelen ter beheersing van blootstelling/persoonlijke bescherming

- **8.1 Controleparameters**
- **Aanvullende gegevens m.b.t. de inrichting van technische installaties:** Geen aanvullende gegevens. Zie 7.

- **Bestanddelen met grenswaarden die m.b.t. de werkruimte in acht genomen moeten worden:**

78-78-4 isopentaaan

WGW	Lange termijn waarde: 1800 mg/m <sup>3</sup> , 600 ppm
-----	--

- **Aanvullende gegevens:** Als basis dienden lijsten die bij opstelling geldig waren.
- **8.2 Maatregelen ter beheersing van blootstelling**
- **Persoonlijke beschermingsvoorzieningen:**
- **Algemene beschermings- en gezondheidsmaatregelen:**  
Verwijderd houden van eet- en drinkwaren.  
Vóór de pauze en aan het einde van werktijd handen wassen.
- **Ademhalingsbescherming:** Niet noodzakelijk.
- **Handbescherming:**  
Het handschoenmateriaal moet ondoorlatend en bestand zijn tegen het product / de stof / de bereiding.  
Op grond van falende testen kan geen aanbeveling voor handschoenmateriaal voor het product / de bereiding / het chemicaliënmengsel afgegeven worden.  
Kies handschoenmateriaal rekening houdend met de penetratietijden, de permeatiegraden en de degradatie.
- **Handschoenmateriaal**  
De keuze van een geschikte handschoen is niet alleen afhankelijk van het materiaal, maar ook van andere kwaliteitskenmerken en verschilt van fabrikant tot fabrikant.
- **Doordringingstijd van het handschoenmateriaal**  
De precieze penetratietijd kunt u te weten komen bij de handschoenfabrikant; houd er rekening mee.
- **Oogbescherming:**



Nauw aansluitende veiligheidsbril

### RUBRIEK 9: Fysische en chemische eigenschappen

- **9.1 Informatie over fysische en chemische basiseigenschappen**

- **Algemene gegevens**

- **Voorkomen:**

<b>Vorm:</b>	Vloeibaar
<b>Kleur:</b>	Kleurloos
<b>Geur:</b>	Karakteristiek
<b>Geurdrempelwaarde:</b>	Niet bepaald.

- **pH-waarde:** Niet bepaald.

- **Toestandsverandering**

<b>Smelt-/vriespunt:</b>	-159,9 °C
<b>Beginkookpunt en kooktraject:</b>	27,9 °C

- **Vlampunt:** -51 °C

- **Ontvlambaarheid (vast, gas):** Niet bruikbaar.

(Vervolg op blz. 5)

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(Vervolg van blz. 4)

· <b>Ontstekingstemperatuur:</b>	420 °C
· <b>Ontledingstemperatuur:</b>	Niet bepaald.
· <b>Zelfontbrandingstemperatuur:</b>	Niet bepaald.
· <b>Ontploffingseigenschappen:</b>	Het produkt is niet ontploffingsgevaarlijk, maar de vorming van ontploffingsgevaarlijke damp-/luchtmengsels is mogelijk.
· <b>Ontploffingsgrenzen:</b>	
<b>Onderste:</b>	1,4 Vol %
<b>Bovenste:</b>	7,6 Vol %
· <b>Dampspanning bij 20 °C:</b>	793 hPa
· <b>Dichtheid bij 20 °C:</b>	0,62 g/cm <sup>3</sup>
· <b>Relatieve dichtheid</b>	Niet bepaald.
· <b>Dampdichtheid</b>	Niet bepaald.
· <b>Verdampingssnelheid</b>	Niet bepaald.
· <b>Oplosbaarheid in/mengbaarheid met Water:</b>	Niet resp. gering mengbaar.
· <b>Verdelingscoëfficiënt: n-octanol/water:</b>	Niet bepaald.
· <b>Viscositeit</b>	
<b>Dynamisch bij 20 °C:</b>	2,14 mPas
<b>Kinematisch:</b>	Niet bepaald.
· <b>9.2 Overige informatie</b>	Geen verdere relevante informatie verkrijgbaar.

## RUBRIEK 10: Stabiliteit en reactiviteit

- **10.1 Reactiviteit** Geen verdere relevante informatie verkrijgbaar.
- **10.2 Chemische stabiliteit**
- **Thermische afbraak / te vermijden omstandigheden:** Geen afbraak bij gebruik volgens voorschrift.
- **10.3 Mogelijke gevaarlijke reacties** Geen gevaarlijke reacties bekend.
- **10.4 Te vermijden omstandigheden** Geen verdere relevante informatie verkrijgbaar.
- **10.5 Chemisch op elkaar inwerkende materialen:** Geen verdere relevante informatie verkrijgbaar.
- **10.6 Gevaarlijke ontledingsproducten:** Geen gevaarlijke ontbindingsproducten bekend.

## RUBRIEK 11: Toxicologische informatie

- **11.1 Informatie over toxicologische effecten**
- **Acute toxiciteit** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Primaire aandoening:**
- **Huidcorrosie/-irritatie** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Ernstig oogletsel/oogirritatie** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Sensibilisatie van de luchtwegen/de huid**  
Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Aanvullende toxicologische informatie:**
- **CMR-effecten (kankerverwekkendheid, mutageniteit en giftigheid voor de voortplanting)**
- **Mutageniteit in geslachtscellen** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Kankerverwekkendheid** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Giftigheid voor de voortplanting** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.

(Vervolg op blz. 6)



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- **STOT bij eenmalige blootstelling**  
Kan slaperigheid of duizeligheid veroorzaken.
- **STOT bij herhaalde blootstelling** Gebaseerd op beschikbare gegevens; aan de indelingscriteria is niet voldaan.
- **Gevaar bij inademing**  
Kan dodelijk zijn als de stof bij inslikken in de luchtwegen terechtkomt.

### RUBRIEK 12: Ecologische informatie

- **12.1 Toxiciteit**
- **Aquatische toxiciteit:** Geen verdere relevante informatie verkrijgbaar.
- **12.2 Persistentie en afbreekbaarheid** Geen verdere relevante informatie verkrijgbaar.
- **12.3 Bioaccumulatie** Geen verdere relevante informatie verkrijgbaar.
- **12.4 Mobiliteit in de bodem** Geen verdere relevante informatie verkrijgbaar.
- **Ecotoxische effecten:**
- **Opmerking:** Giftig voor vissen.
- **Verdere ecologische informatie:**
- **Algemene informatie:**  
Waterbezwaarlijkheid (NL): A(2) vergiftig voor in water levende organismen kan in het aquatische milieu op lange termijn schadelijke effecten veroorzaken  
Gevaar voor water klasse 2 (D) (Lijstclassificatie): gevaar voor water  
Niet lozen in grondwater, in oppervlaktewater of in riolering.  
Gevaar voor drinkwater zelfs bij uitlopen van geringe hoeveelheden in de ondergrond.  
In oppervlaktewater ook giftig voor vissen en plankton.  
giftig voor in het water levende organismen
- **12.5 Resultaten van PBT- en zPzB-beoordeling**
- **PBT:** Niet bruikbaar.
- **zPzB:** Niet bruikbaar.
- **12.6 Andere schadelijke effecten** Geen verdere relevante informatie verkrijgbaar.

### RUBRIEK 13: Instructies voor verwijdering

- **13.1 Afvalverwerkingsmethoden**
- **Aanbeveling:** Mag niet tesamen met huisvuil gestort worden of in de riolering terechtkomen.
- **Niet gereinigde verpakkingen:**
- **Aanbeveling:** Afvalverwijdering volgens overheidsbepalingen.

### RUBRIEK 14: Informatie met betrekking tot het vervoer

- **14.1 VN-nummer**
- **ADR, IMDG, IATA** UNI265
- **14.2 Juiste ladingnaam overeenkomstig de modelreglementen van de VN**
- **ADR** 1265 PENTANEN, MILIEUGEVAARLIJK
- **IMDG, IATA** PENTANES

(Vervolg op blz. 7)

NL

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## · 14.3 Transportgevarenklasse(n)

## · ADR



· klasse 3 Brandbare vloeistoffen  
 · Etiket 3

## · IMDG, IATA



· Class 3 Brandbare vloeistoffen  
 · Label 3

## · 14.4 Verpakkingsgroep:

· ADR, IMDG, IATA I

## · 14.5 Milieugevaren:

· Bijzondere kenmerking (ADR): Milieugevaarlijke vloeistof

Symbool (vis en boom)

## · 14.6 Bijzondere voorzorgen voor de gebruiker

Waarschuwing: Brandbare vloeistoffen

· Gevaarsidentificatienummer (Kemler-getal): 33

· EMS-nummer: 3-07

· Stowage Category E

## · 14.7 Vervoer in bulk overeenkomstig bijlage II bij

Marpol en de IBC-code Niet bruikbaar.

## · Transport/verdere gegevens:

## · ADR

· Beperkte hoeveelheden (LQ) 0

· Uitgezonderde hoeveelheden (EQ) Code: E3

Grootste netto hoeveelheid per binnenverpakking: 30 ml

Grootste netto hoeveelheid per buitenverpakking: 300 ml

· Vervoerscategorie 1

· Tunnelbeperkingscode D/E

## · IMDG

· Limited quantities (LQ) 0

· Excepted quantities (EQ) Code: E3

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 300 ml

## · VN "Model Regulation":

UN 1265 PENTANEN, 3, I, MILIEUGEVAARLIJK

## RUBRIEK 15: Regelgeving

## · 15.1 Specifieke veiligheids-, gezondheids- en milieureglementen en -wetgeving voor de stof of het mengsel

· SZW-lijst van kankerverwekkende stoffen De stof is niet aanwezig.

· SZW-lijst van mutagene stoffen De stof is niet aanwezig.

· NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Vruchtbaarheid De stof is niet aanwezig.

(Vervolg op blz. 8)

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- **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Ontwikkeling** De stof is niet aanwezig.
- **NIET-limitatieve lijst van voor de voortplanting giftige stoffen - Borstvoeding** De stof is niet aanwezig.
- **Lijst Zeer Zorgwekkende Stoffen (ZZS)** De stof is niet aanwezig.
- **Lijst van Potentieel Zeer Zorgwekkende Stoffen** De stof is niet aanwezig.
- **Richtlijn 2012/18/EU**
- **Gevaarlijke stoffen die met naam genoemd worden - BIJLAGE I** De stof is niet aanwezig.
- **Seveso-categorie**
- **P5a ONTVLAMBARE VLOEISTOFFEN**
- **E2 Gevaar voor het aquatisch milieu**
- **Drempelwaarde (ton) voor toepassing van voorschriften voor lagedrempelinrichtingen 10 t**
- **Drempelwaarde (ton) voor toepassing van voorschriften voor hogedrempelinrichtingen 50 t**
- **Verordening (EG) nr. 1907/2006 BIJLAGE XVII** Beperkingsvoorwaarden: 3, 40
- **Richtlijn 2011/65/EU betreffende beperking van het gebruik van bepaalde gevaarlijke stoffen in elektrische en elektronische apparatuur - Bijlage II**
- **De stof is niet aanwezig.**
- **VERORDENING (EU) 2019/1148**
- **Bijlage I - PRECURSOREN VOOR EXPLOSIEVEN WAARVOOR EEN BEPERKING GELDT (Bovengrenswaarde ten behoeve van vergunningverlening op grond van artikel 5, lid 3)**
- **De stof is niet aanwezig.**
- **Bijlage II - PRECURSOREN VOOR EXPLOSIEVEN DIE MOETEN WORDEN GEMELD**
- **De stof is niet aanwezig.**
- **Verordening (EG) nr. 273/2004 inzake drugsprecursoren** De stof is niet aanwezig.
- **Verordening (EG) Nr. 111/2005 houdende voorschriften voor het toezicht op de handel tussen de Gemeenschap en derde landen in drugsprecursoren**
- **De stof is niet aanwezig.**
- **Nationale voorschriften:**
- **Gevaarklasse v. water:**
- **Waterbezwaarlijkheid (NL): A(2) vergiftig voor in water levende organismen kan in het aquatische milieu op lange termijn schadelijke effecten veroorzaken**
- **15.2 Chemischeveiligheidsbeoordeling: Een chemische veiligheidsbeoordeling is niet uitgevoerd.**

### RUBRIEK 16: Overige informatie

Deze gegevens zijn gebaseerd op de huidige stand van onze kennis. Zij beschrijven echter geen garantie van producteigenschappen en vestigen geen contractuele rechtsbetrekking.

#### Afkortingen en acroniemen:

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Ontvlambare vloeistoffen – Categorie 1

STOT SE 3: Specifieke doelorgaantoxiciteit bij eenmalige blootstelling – Categorie 3

Asp. Tox. 1: Aspiratiegevaar – Categorie 1

Aquatic Chronic 2: Gevaar voor het aquatisch milieu - aquatisch gevaar op lange termijn – Categorie 2

# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

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### RUBRIQUE 1: Identification de la substance/du mélange et de la société/l'entreprise

· **1.1 Identificateur de produit**

· **Nom du produit:** isopentane

· **Code du produit:** 18550

· **No CAS:**

78-78-4

· **Numéro CE:**

201-142-8

· **Numéro index:**

601-006-00-1

· **1.2 Utilisations identifiées pertinentes de la substance ou du mélange et utilisations déconseillées**

*Pas d'autres informations importantes disponibles.*

· **Emploi de la substance / de la préparation** Produits chimiques pour laboratoires

· **1.3 Renseignements concernant le fournisseur de la fiche de données de sécurité**

· **Producteur/fournisseur:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: [info@emsdiasum.com](mailto:info@emsdiasum.com)

[www.emsdiasum.com](http://www.emsdiasum.com)

· **Service chargé des renseignements:** Product safety department

· **1.4 Numéro d'appel d'urgence:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

### RUBRIQUE 2: Identification des dangers

· **2.1 Classification de la substance ou du mélange**

· **Classification selon le règlement (CE) n° 1272/2008**



GHS02 flamme

Flam. Liq. 1

H224 Liquide et vapeurs extrêmement inflammables.



GHS08 danger pour la santé

Asp. Tox. 1

H304 Peut être mortel en cas d'ingestion et de pénétration dans les voies respiratoires.



GHS09 environnement

Aquatic Chronic 2

H411 Toxique pour les organismes aquatiques, entraîne des effets néfastes à long terme.



GHS07

STOT SE 3

H336 Peut provoquer somnolence ou vertiges.

· **2.2 Éléments d'étiquetage**

· **Étiquetage selon le règlement (CE) n° 1272/2008** La substance est classifiée et étiquetée selon le règlement CLP.

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· **Pictogrammes de danger**· **Mention d'avertissement** Danger· **Mentions de danger**

H224 Liquide et vapeurs extrêmement inflammables.

H336 Peut provoquer somnolence ou vertiges.

H304 Peut être mortel en cas d'ingestion et de pénétration dans les voies respiratoires.

H411 Toxique pour les organismes aquatiques, entraîne des effets néfastes à long terme.

· **Conseils de prudence**

P210 Tenir à l'écart de la chaleur, des surfaces chaudes, des étincelles, des flammes nues et de toute autre source d'inflammation. Ne pas fumer.

P301+P310 EN CAS D'INGESTION: Appeler immédiatement un CENTRE ANTIPOISON/un médecin.

P331 NE PAS faire vomir.

P303+P361+P353 EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): Enlever immédiatement tous les vêtements contaminés. Rincer la peau à l'eau [ou se doucher].

P405 Garder sous clef.

P501 Éliminer le contenu/récipient conformément à la réglementation locale/régionale/nationale/internationale.

· **Indications complémentaires:**

EUH066 L'exposition répétée peut provoquer dessèchement ou gerçures de la peau.

· **2.3 Autres dangers**· **Résultats des évaluations PBT et vPvB**

· **PBT:** Non applicable.

· **vPvB:** Non applicable.

### RUBRIQUE 3: Composition/informations sur les composants

· **3.1 Caractérisation chimique: Substances**· **No CAS Désignation**

78-78-4 isopentane

· **Code(s) d'identification**

· **Numéro CE:** 201-142-8

· **Numéro index:** 601-006-00-1

### RUBRIQUE 4: Premiers secours

· **4.1 Description des premiers secours**

· **Après inhalation:** Donner de l'air frais, consulter un médecin en cas de troubles.

· **Après contact avec la peau:** En règle générale, le produit n'irrite pas la peau.

· **Après contact avec les yeux:**

Rincer les yeux, sous l'eau courante, pendant plusieurs minutes, en écartant bien les paupières.

· **Après ingestion:** Si les troubles persistent, consulter un médecin.

· **4.2 Principaux symptômes et effets, aigus et différés** Pas d'autres informations importantes disponibles.

· **4.3 Indication des éventuels soins médicaux immédiats et traitements particuliers nécessaires**

Pas d'autres informations importantes disponibles.

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### RUBRIQUE 5: Mesures de lutte contre l'incendie

- **5.1 Moyens d'extinction**
- **Moyens d'extinction:**  
CO<sub>2</sub>, poudre d'extinction ou eau pulvérisée. Combattre les foyers importants avec de l'eau pulvérisée ou de la mousse résistant à l'alcool.
- **Produits extincteurs déconseillés pour des raisons de sécurité:** Jet d'eau à grand débit
- **5.2 Dangers particuliers résultant de la substance ou du mélange**  
Pas d'autres informations importantes disponibles.
- **5.3 Conseils aux pompiers**
- **Équipement spécial de sécurité:** Aucune mesure particulière n'est requise.

### RUBRIQUE 6: Mesures à prendre en cas de dispersion accidentelle

- **6.1 Précautions individuelles, équipement de protection et procédures d'urgence**  
Porter un équipement de sécurité. Eloigner les personnes non protégées.
- **6.2 Précautions pour la protection de l'environnement:**  
Ne pas rejeter à l'égout, ni dans le milieu naturel.  
En cas de pénétration dans les eaux ou les égouts, avertir les autorités compétentes.  
Ne pas rejeter dans les canalisations, dans les eaux de surface et dans les nappes d'eau souterraines.
- **6.3 Méthodes et matériel de confinement et de nettoyage:**  
Recueillir les liquides à l'aide d'un produit absorbant (sable, kieselguhr, neutralisant d'acide, liant universel, sciure).  
Evacuer les matériaux contaminés en tant que déchets conformément au point 13.  
Assurer une aération suffisante.
- **6.4 Référence à d'autres rubriques**  
Afin d'obtenir des informations pour une manipulation sûre, consulter le chapitre 7.  
Afin d'obtenir des informations sur les équipements de protection personnels, consulter le chapitre 8.  
Afin d'obtenir des informations sur l'élimination, consulter le chapitre 13.

### RUBRIQUE 7: Manipulation et stockage

- **7.1 Précautions à prendre pour une manipulation sans danger**  
Ouvrir et manipuler les récipients avec précaution.
- **Préventions des incendies et des explosions:**  
Tenir à l'abri des sources d'inflammation - ne pas fumer.  
Prendre des mesures contre les charges électrostatiques.
- **7.2 Conditions d'un stockage sûr, y compris d'éventuelles incompatibilités**
- **Stockage:**
- **Exigences concernant les lieux et conteneurs de stockage:** Stocker dans un endroit frais.
- **Indications concernant le stockage commun:** Pas nécessaire.
- **Autres indications sur les conditions de stockage:**  
Tenir les emballages hermétiquement fermés.  
Ne pas fermer les emballages de telle sorte qu'ils soient hermétiques aux gaz.  
Stocker au frais et au sec dans des fûts bien fermés.  
Protéger de la forte chaleur et du rayonnement direct du soleil.
- **7.3 Utilisation(s) finale(s) particulière(s)** Pas d'autres informations importantes disponibles.

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### RUBRIQUE 8: Contrôles de l'exposition/protection individuelle

#### · 8.1 Paramètres de contrôle

#### · Indications complémentaires pour l'agencement des installations techniques:

Sans autre indication, voir point 7.

#### · Composants présentant des valeurs-seuil à surveiller par poste de travail:

78-78-4 isopentane

VLEP Valeur à long terme: 3000 mg/m<sup>3</sup>, 1000 ppm

#### · Remarques supplémentaires:

Le présent document s'appuie sur les listes en vigueur au moment de son élaboration.

#### · 8.2 Contrôles de l'exposition

##### · Equipement de protection individuel:

##### · Mesures générales de protection et d'hygiène:

Tenir à l'écart des produits alimentaires, des boissons et de la nourriture pour animaux.

Se laver les mains avant les pauses et en fin de travail.

##### · Protection respiratoire: N'est pas nécessaire.

##### · Protection des mains:

Le matériau des gants doit être imperméable et résistant au produit / à la substance / à la préparation.

À cause du manque de tests, aucune recommandation pour un matériau de gants pour le produit / la préparation / le mélange de produits chimiques ne peut être donnée.

Choix du matériau des gants en fonction des temps de pénétration, du taux de perméabilité et de la dégradation.

##### · Matériau des gants

Le choix de gants appropriés ne dépend pas seulement du matériau, mais également d'autres critères de qualité qui peuvent varier d'un fabricant à l'autre.

##### · Temps de pénétration du matériau des gants

Le temps de pénétration exact est à déterminer par le fabricant des gants de protection et à respecter.

##### · Protection des yeux:



Lunettes de protection hermétiques

### RUBRIQUE 9: Propriétés physiques et chimiques

#### · 9.1 Informations sur les propriétés physiques et chimiques essentielles

##### · Indications générales

##### · Aspect:

Forme: Liquide

Couleur: Incolore

· Odeur: Caractéristique

· Seuil olfactif: Non déterminé.

· valeur du pH: Non déterminé.

##### · Changement d'état

Point de fusion/point de congélation: -159,9 °C

Point initial d'ébullition et intervalle d'ébullition: 27,9 °C

· Point d'éclair -51 °C

· Inflammabilité (solide, gaz): Non applicable.

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· <b>Température d'inflammation:</b>	420 °C
· <b>Température de décomposition:</b>	Non déterminé.
· <b>Température d'auto-inflammabilité:</b>	Non déterminé.
· <b>Propriétés explosives:</b>	Le produit n'est pas explosif; toutefois, des mélanges explosifs vapeur-air peuvent se former.
· <b>Limites d'explosion:</b>	
<b>Inférieure:</b>	1,4 Vol %
<b>Supérieure:</b>	7,6 Vol %
· <b>Pression de vapeur à 20 °C:</b>	793 hPa
· <b>Densité à 20 °C:</b>	0,62 g/cm <sup>3</sup>
· <b>Densité relative</b>	Non déterminé.
· <b>Densité de vapeur:</b>	Non déterminé.
· <b>Taux d'évaporation:</b>	Non déterminé.
· <b>Solubilité dans/miscibilité avec l'eau:</b>	Pas ou peu miscible
· <b>Coefficient de partage: n-octanol/eau:</b>	Non déterminé.
· <b>Viscosité:</b>	
<b>Dynamique à 20 °C:</b>	2,14 mPas
<b>Cinématique:</b>	Non déterminé.
· <b>9.2 Autres informations</b>	Pas d'autres informations importantes disponibles.

### RUBRIQUE 10: Stabilité et réactivité

- **10.1 Réactivité** Pas d'autres informations importantes disponibles.
- **10.2 Stabilité chimique**
- **Décomposition thermique/conditions à éviter:** Pas de décomposition en cas d'usage conforme.
- **10.3 Possibilité de réactions dangereuses** Aucune réaction dangereuse connue.
- **10.4 Conditions à éviter** Pas d'autres informations importantes disponibles.
- **10.5 Matières incompatibles:** Pas d'autres informations importantes disponibles.
- **10.6 Produits de décomposition dangereux:** Pas de produits de décomposition dangereux connus

### RUBRIQUE 11: Informations toxicologiques

- **11.1 Informations sur les effets toxicologiques**
- **Toxicité aiguë** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Effet primaire d'irritation:**
- **Corrosion cutanée/irritation cutanée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Lésions oculaires graves/irritation oculaire**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Sensibilisation respiratoire ou cutanée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Indications toxicologiques complémentaires:**
- **Effets CMR (cancérogène, mutagène et toxique pour la reproduction)**
- **Mutagénicité sur les cellules germinales**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.

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# Fiche de données de sécurité

## selon 1907/2006/CE, Article 31

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**Nom du produit: isopentane**

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- **Cancérogénicité** Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité pour la reproduction**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Toxicité spécifique pour certains organes cibles - exposition unique**  
Peut provoquer somnolence ou vertiges.
- **Toxicité spécifique pour certains organes cibles - exposition répétée**  
Compte tenu des données disponibles, les critères de classification ne sont pas remplis.
- **Danger par aspiration**  
Peut être mortel en cas d'ingestion et de pénétration dans les voies respiratoires.

### RUBRIQUE 12: Informations écologiques

- **12.1 Toxicité**
- **Toxicité aquatique:** Pas d'autres informations importantes disponibles.
- **12.2 Persistance et dégradabilité** Pas d'autres informations importantes disponibles.
- **12.3 Potentiel de bioaccumulation** Pas d'autres informations importantes disponibles.
- **12.4 Mobilité dans le sol** Pas d'autres informations importantes disponibles.
- **Effets écotoxiques:**
- **Remarque:** Toxique chez les poissons.
- **Autres indications écologiques:**
- **Indications générales:**  
Catégorie de pollution des eaux 2 (D) (classification selon liste): polluant  
Ne pas laisser pénétrer dans la nappe phréatique, les eaux ou les canalisations.  
Danger pour l'eau potable dès fuite d'une petite quantité dans le sous-sol.  
Dans les eaux, également toxique pour les poissons et le plancton.  
Toxique pour les organismes aquatiques.
- **12.5 Résultats des évaluations PBT et VPVB**
- **PBT:** Non applicable.
- **vPvB:** Non applicable.
- **12.6 Autres effets néfastes** Pas d'autres informations importantes disponibles.

### RUBRIQUE 13: Considérations relatives à l'élimination

- **13.1 Méthodes de traitement des déchets**
- **Recommandation:** Ne doit pas être évacué avec les ordures ménagères. Ne pas laisser pénétrer dans les égouts.
- **Emballages non nettoyés:**
- **Recommandation:** Evacuation conformément aux prescriptions légales.

### RUBRIQUE 14: Informations relatives au transport

- |  |  |
|--|--|
| · <b>14.1 Numéro ONU</b>                                   |  |
| · <b>ADR, IMDG, IATA</b>                                   | UN1265   |
| · <b>14.2 Désignation officielle de transport de l'ONU</b> |  |
| · <b>ADR</b>   | 1265 PENTANES, DANGEREUX POUR<br>L'ENVIRONNEMENT |
| · <b>IMDG, IATA</b>  | PENTANES   |

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## · 14.3 Classe(s) de danger pour le transport

## · ADR



· Classe 3 Liquides inflammables.  
· Étiquette 3

## · IMDG, IATA



· Class 3 Liquides inflammables.  
· Label 3

## · 14.4 Groupe d'emballage

· ADR, IMDG, IATA I

## · 14.5 Dangers pour l'environnement:

Matière dangereuse du point de vue de l'environnement, liquide

## · Marquage spécial (ADR):

Signe conventionnel (poisson et arbre)

## · 14.6 Précautions particulières à prendre par l'utilisateur

Attention: Liquides inflammables.

· Numéro d'identification du danger (Indice Kemler): 33

· No EMS: 3-07

· Stowage Category E

## · 14.7 Transport en vrac conformément à l'annexe II de la convention Marpol et au recueil IBC

Non applicable.

## · Indications complémentaires de transport:

## · ADR

· Quantités limitées (LQ) 0

· Quantités exceptées (EQ) Code: E3

Quantité maximale nette par emballage intérieur: 30 ml

Quantité maximale nette par emballage extérieur: 300 ml

· Catégorie de transport I

· Code de restriction en tunnels D/E

## · IMDG

· Limited quantities (LQ) 0

· Excepted quantities (EQ) Code: E3

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 300 ml

## · "Règlement type" de l'ONU:

UN 1265 PENTANES, 3, I, DANGEREUX POUR L'ENVIRONNEMENT

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### RUBRIQUE 15: Informations relatives à la réglementation

- **15.1 Réglementations/législation particulières à la substance ou au mélange en matière de sécurité, de santé et d'environnement**
- **Directive 2012/18/UE**
- **Substances dangereuses désignées - ANNEXE I** la substance n'est pas comprise
- **Catégorie SEVESO**
- **P5a LIQUIDES INFLAMMABLES**
- **E2 Danger pour l'environnement aquatique**
- **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil bas 10 t**
- **Quantité seuil (tonnes) pour l'application des exigences relatives au seuil haut 50 t**
- **RÈGLEMENT (CE) N° 1907/2006 ANNEXE XVII** Conditions de limitation: 3, 40
- **Directive 2011/65/UE relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques – Annexe II**  
la substance n'est pas comprise
- **RÈGLEMENT (UE) 2019/1148**
- **Annexe I - PRÉCURSEURS D'EXPLOSIFS FAISANT L'OBJET DE RESTRICTIONS (Valeur limite maximale aux fins de l'octroi d'une licence en vertu de l'article 5, paragraphe 3)**  
la substance n'est pas comprise
- **Annexe II - PRÉCURSEURS D'EXPLOSIFS DEVANT FAIRE L'OBJET D'UN SIGNALEMENT**  
la substance n'est pas comprise
- **Règlement (CE) n° 273/2004 relatif aux précurseurs de drogues** la substance n'est pas comprise
- **Règlement (CE) n° 111/2005 fixant des règles pour la surveillance du commerce des précurseurs des drogues entre la Communauté et les pays tiers**  
la substance n'est pas comprise
- **15.2 Évaluation de la sécurité chimique:** Une évaluation de la sécurité chimique n'a pas été réalisée.

### RUBRIQUE 16: Autres informations

Ces indications sont fondées sur l'état actuel de nos connaissances, mais ne constituent pas une garantie quant aux propriétés du produit et ne donnent pas lieu à un rapport juridique contractuel.

· **Acronymes et abréviations:**

ADR: Accord relatif au transport international des marchandises dangereuses par route

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Liquides inflammables – Catégorie 1

STOT SE 3: Toxicité spécifique pour certains organes cibles (exposition unique) – Catégorie 3

Asp. Tox. 1: Danger par aspiration – Catégorie 1

Aquatic Chronic 2: Dangers pour le milieu aquatique- toxicité à long terme pour le milieu aquatique – Catégorie 2

# Sicherheitsdatenblatt gemäß 1907/2006/EG, Artikel 31

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überarbeitet am: 15.03.2022

## ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

### · 1.1 Produktidentifikator

· **Handelsname:** Methylbutan

· **Artikelnummer:** 18550

· **CAS-Nummer:**

78-78-4

· **EG-Nummer:**

201-142-8

· **Indexnummer:**

601-006-00-1

· **1.2 Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird**

Keine weiteren relevanten Informationen verfügbar.

· **Verwendung des Stoffes / des Gemisches** Laborchemikalien

· **1.3 Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt**

· **Hersteller/Lieferant:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: [info@emsdiasum.com](mailto:info@emsdiasum.com)

[www.emsdiasum.com](http://www.emsdiasum.com)

Science Services GmbH

Unterhachinger Str. 75

81737 München Germany

Tel: +49(0)89 18 93 668-0

[safety@scienceservices.de](mailto:safety@scienceservices.de)

Deutschland: +49 (0)89 19240, 24h Giftnotruf München, [www.toxinfo.org](http://www.toxinfo.org)

Osterreich: +43 1406 43 43, Gesundheit Osterreich GmbH, 24 h

· **Auskunftgebender Bereich:** Product safety department

· **1.4 Notrufnummer:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

## ABSCHNITT 2: Mögliche Gefahren

· **2.1 Einstufung des Stoffs oder Gemischs**

· **Einstufung gemäß Verordnung (EG) Nr. 1272/2008**



GHS02 Flamme

Flam. Liq. 1      H224 Flüssigkeit und Dampf extrem entzündbar.



GHS08 Gesundheitsgefahr

Asp. Tox. 1      H304 Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.

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GHS09 Umwelt

*Aquatic Chronic 2 H411 Giftig für Wasserorganismen, mit langfristiger Wirkung.*



GHS07

STOT SE 3      H336 Kann Schläfrigkeit und Benommenheit verursachen.

- **2.2 Kennzeichnungselemente**
- **Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008**  
Der Stoff ist gemäß CLP-Verordnung eingestuft und gekennzeichnet.
- **Gefahrenpiktogramme**



GHS02



GHS07



GHS08



GHS09

- **Signalwort Gefahr**
- **Gefahrenhinweise**  
H224 Flüssigkeit und Dampf extrem entzündbar.  
H336 Kann Schläfrigkeit und Benommenheit verursachen.  
H304 Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.  
H411 Giftig für Wasserorganismen, mit langfristiger Wirkung.
- **Sicherheitshinweise**  
P210 Von Hitze, heißen Oberflächen, Funken, offenen Flammen und anderen Zündquellen fernhalten. Nicht rauchen.  
P301+P310 BEI VERSCHLUCKEN: Sofort GIFTINFORMATIONSZENTRUM/Arzt anrufen.  
P331 KEIN Erbrechen herbeiführen.  
P303+P361+P353 BEI BERÜHRUNG MIT DER HAUT (oder dem Haar): Alle kontaminierten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen [oder duschen].  
P405 Unter Verschluss aufbewahren.  
P501 Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen / internationalen Vorschriften.
- **Zusätzliche Angaben:**  
EUH066 Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.
- **2.3 Sonstige Gefahren**
- **Ergebnisse der PBT- und vPvB-Beurteilung**
- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.

### ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

- **3.1 Chemische Charakterisierung: Stoffe**
- **CAS-Nr. Bezeichnung**  
78-78-4 Methylbutan
- **Identifikationsnummer(n)**
- **EG-Nummer:** 201-142-8

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### ABSCHNITT 4: Erste-Hilfe-Maßnahmen

- **4.1 Beschreibung der Erste-Hilfe-Maßnahmen**
- **Nach Einatmen:** Frischluftzufuhr, bei Beschwerden Arzt aufsuchen.
- **Nach Hautkontakt:** Im allgemeinen ist das Produkt nicht hautreizend.
- **Nach Augenkontakt:** Augen bei geöffnetem Lidspalt mehrere Minuten mit fließendem Wasser spülen.
- **Nach Verschlucken:** Bei anhaltenden Beschwerden Arzt konsultieren.
- **4.2 Wichtigste akute und verzögert auftretende Symptome und Wirkungen**  
Keine weiteren relevanten Informationen verfügbar.
- **4.3 Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung**  
Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

- **5.1 Löschmittel**
- **Geeignete Löschmittel:**  
CO<sub>2</sub>, Löschpulver oder Wasserschleimstrahl. Größeren Brand mit Wasserschleimstrahl oder alkoholbeständigem Schaum bekämpfen.
- **Aus Sicherheitsgründen ungeeignete Löschmittel:** Wasser im Vollstrahl
- **5.2 Besondere vom Stoff oder Gemisch ausgehende Gefahren**  
Keine weiteren relevanten Informationen verfügbar.
- **5.3 Hinweise für die Brandbekämpfung**
- **Besondere Schutzausrüstung:** Keine besonderen Maßnahmen erforderlich.

### ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

- **6.1 Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren**  
Schutzausrüstung tragen. Ungeschützte Personen fernhalten.
- **6.2 Umweltschutzmaßnahmen:**  
Nicht in die Kanalisation oder in Gewässer gelangen lassen.  
Bei Eindringen in Gewässer oder Kanalisation zuständige Behörden benachrichtigen.  
Nicht in die Kanalisation/Oberflächenwasser/Grundwasser gelangen lassen.
- **6.3 Methoden und Material für Rückhaltung und Reinigung:**  
Mit flüssigkeitsbindendem Material (Sand, Kieselgur, Säurebinder, Universalbinder, Sägemehl) aufnehmen.  
Kontaminiertes Material als Abfall nach Abschnitt 13 entsorgen.  
Für ausreichende Lüftung sorgen.
- **6.4 Verweis auf andere Abschnitte**  
Informationen zur sicheren Handhabung siehe Abschnitt 7.  
Informationen zur persönlichen Schutzausrüstung siehe Abschnitt 8.  
Informationen zur Entsorgung siehe Abschnitt 13.

### ABSCHNITT 7: Handhabung und Lagerung

- **7.1 Schutzmaßnahmen zur sicheren Handhabung** Behälter mit Vorsicht öffnen und handhaben.
- **Hinweise zum Brand- und Explosionsschutz:**  
Zündquellen fernhalten - nicht rauchen.  
Maßnahmen gegen elektrostatische Aufladung treffen.

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- **7.2 Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten**
- **Lagerung:**
- **Anforderung an Lagerräume und Behälter:** An einem kühlen Ort lagern.
- **Zusammenlagerungshinweise:** Nicht erforderlich.
- **Weitere Angaben zu den Lagerbedingungen:**  
Behälter dicht geschlossen halten.  
Behälter nicht gasdicht verschließen.  
In gut verschlossenen Gebinden kühl und trocken lagern.  
Vor Hitze und direkter Sonnenbestrahlung schützen.
- **Lagerklasse:**
- **Klassifizierung nach Betriebssicherheitsverordnung (BetrSichV):** Entzündbare Flüssigkeiten
- **7.3 Spezifische Endanwendungen** Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 8: Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstungen

- **8.1 Zu überwachende Parameter**
- **Zusätzliche Hinweise zur Gestaltung technischer Anlagen:** Keine weiteren Angaben, siehe Abschnitt 7.

- **Bestandteile mit arbeitsplatzbezogenen, zu überwachenden Grenzwerten:**

78-78-4 Methylbutan

AGW	Langzeitwert: 3000 mg/m <sup>3</sup> , 1000 ml/m <sup>3</sup> 2(II);DFG, EU
-----	--

- **Zusätzliche Hinweise:** Als Grundlage dienen die bei der Erstellung gültigen Listen.

- **8.2 Begrenzung und Überwachung der Exposition**

- **Persönliche Schutzausrüstung:**

- **Allgemeine Schutz- und Hygienemaßnahmen:**

Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.  
Vor den Pausen und bei Arbeitsende Hände waschen.

- **Atemschutz:** Nicht erforderlich.

- **Handschutz:**

Das Handschuhmaterial muss undurchlässig und beständig gegen das Produkt / den Stoff / die Zubereitung sein.  
Aufgrund fehlender Tests kann keine Empfehlung zum Handschuhmaterial für das Produkt / die Zubereitung / das Chemikaliengemisch abgegeben werden.  
Auswahl des Handschuhmaterials unter Beachtung der Durchbruchzeiten, Permeationsraten und der Degradation.

- **Handschuhmaterial**

Die Auswahl eines geeigneten Handschuhs ist nicht nur vom Material, sondern auch von weiteren Qualitätsmerkmalen abhängig und von Hersteller zu Hersteller unterschiedlich.

- **Durchdringungszeit des Handschuhmaterials**

Die genaue Durchbruchzeit ist beim Schutzhandschuhhersteller zu erfahren und einzuhalten.

- **Augenschutz:**



Dichtschließende Schutzbrille

DE

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### ABSCHNITT 9: Physikalische und chemische Eigenschaften

#### · 9.1 Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

##### · Allgemeine Angaben

##### · Aussehen:

Form:	Flüssig
Farbe:	Farblos
Geruch:	Charakteristisch
Geruchsschwelle:	Nicht bestimmt.

· pH-Wert: Nicht bestimmt.

##### · Zustandsänderung

Schmelzpunkt/Gefrierpunkt:	-159,9 °C
Siedebeginn und Siedebereich:	27,9 °C

· Flammpunkt: -51 °C

· Entzündbarkeit (fest, gasförmig): Nicht anwendbar.

· Zündtemperatur: 420 °C

· Zersetzungstemperatur: Nicht bestimmt.

· Selbstentzündungstemperatur: Nicht bestimmt.

· Explosive Eigenschaften: Das Produkt ist nicht explosionsgefährlich, jedoch ist die Bildung explosionsgefährlicher Dampf-/Luftgemische möglich.

##### · Explosionsgrenzen:

Untere:	1,4 Vol %
Obere:	7,6 Vol %

· Dampfdruck bei 20 °C: 793 hPa

· Dichte bei 20 °C: 0,62 g/cm<sup>3</sup>

· Relative Dichte: Nicht bestimmt.

· Dampfdichte: Nicht bestimmt.

· Verdampfungsgeschwindigkeit: Nicht bestimmt.

##### · Löslichkeit in / Mischbarkeit mit

Wasser: Nicht bzw. wenig mischbar.

· Verteilungskoeffizient: n-Octanol/Wasser: Nicht bestimmt.

##### · Viskosität:

Dynamisch bei 20 °C:	2,14 mPas
Kinematisch:	Nicht bestimmt.

· 9.2 Sonstige Angaben: Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 10: Stabilität und Reaktivität

· 10.1 Reaktivität: Keine weiteren relevanten Informationen verfügbar.

#### · 10.2 Chemische Stabilität

##### · Thermische Zersetzung / zu vermeidende Bedingungen:

Keine Zersetzung bei bestimmungsgemäßer Verwendung.

· 10.3 Möglichkeit gefährlicher Reaktionen: Keine gefährlichen Reaktionen bekannt.

· 10.4 Zu vermeidende Bedingungen: Keine weiteren relevanten Informationen verfügbar.

· 10.5 Unverträgliche Materialien: Keine weiteren relevanten Informationen verfügbar.

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- **10.6 Gefährliche Zersetzungsprodukte:** Keine gefährlichen Zersetzungsprodukte bekannt.

### ABSCHNITT 11: Toxikologische Angaben

- **11.1 Angaben zu toxikologischen Wirkungen**
- **Akute Toxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Primäre Reizwirkung:**
- **Ätz-/Reizwirkung auf die Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Schwere Augenschädigung/-reizung** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Sensibilisierung der Atemwege/Haut** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Zusätzliche toxikologische Hinweise:**
- **CMR-Wirkungen (krebserzeugende, erbgutverändernde und fortpflanzungsgefährdende Wirkung)**
- **Keimzell-Mutagenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Karzinogenität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Reproduktionstoxizität** Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Spezifische Zielorgan-Toxizität bei einmaliger Exposition**  
Kann Schläfrigkeit und Benommenheit verursachen.
- **Spezifische Zielorgan-Toxizität bei wiederholter Exposition**  
Aufgrund der verfügbaren Daten sind die Einstufungskriterien nicht erfüllt.
- **Aspirationsgefahr**  
Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.

### ABSCHNITT 12: Umweltbezogene Angaben

- **12.1 Toxizität**
- **Aquatische Toxizität:** Keine weiteren relevanten Informationen verfügbar.
- **12.2 Persistenz und Abbaubarkeit** Keine weiteren relevanten Informationen verfügbar.
- **12.3 Bioakkumulationspotenzial** Keine weiteren relevanten Informationen verfügbar.
- **12.4 Mobilität im Boden** Keine weiteren relevanten Informationen verfügbar.
- **Ökotoxische Wirkungen:**
- **Bemerkung:** Giftig für Fische.
- **Weitere ökologische Hinweise:**
- **Allgemeine Hinweise:**  
Wassergefährdungsklasse 2 (Listeneinstufung): deutlich wassergefährdend  
Nicht in das Grundwasser, in Gewässer oder in die Kanalisation gelangen lassen.  
Trinkwassergefährdung bereits beim Auslaufen geringer Mengen in den Untergrund.  
In Gewässern auch giftig für Fische und Plankton.  
giftig für Wasserorganismen
- **12.5 Ergebnisse der PBT- und vPvB-Beurteilung**
- **PBT:** Nicht anwendbar.
- **vPvB:** Nicht anwendbar.
- **12.6 Andere schädliche Wirkungen** Keine weiteren relevanten Informationen verfügbar.

### ABSCHNITT 13: Hinweise zur Entsorgung

- **13.1 Verfahren der Abfallbehandlung**
- **Empfehlung:** Darf nicht zusammen mit Hausmüll entsorgt werden. Nicht in die Kanalisation gelangen lassen.

(Fortsetzung auf Seite 7)

# Sicherheitsdatenblatt

## gemäß 1907/2006/EG, Artikel 31

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überarbeitet am: 15.03.2022

**Handelsname: Methylbutan**

(Fortsetzung von Seite 6)

- **Ungereinigte Verpackungen:**
- **Empfehlung:** Entsorgung gemäß den behördlichen Vorschriften.

### ABSCHNITT 14: Angaben zum Transport

· **14.1 UN-Nummer**· **ADR, IMDG, IATA**

UNI265

· **14.2 Ordnungsgemäße UN-Versandbezeichnung**· **ADR**

1265 PENTANE, UMWELTGEFÄHRDEND

· **IMDG, IATA**

PENTANES

· **14.3 Transportgefahrenklassen**· **ADR**· **Klasse**

3 Entzündbare flüssige Stoffe

· **Gefahrzettel**

3

· **IMDG, IATA**· **Class**

3 Entzündbare flüssige Stoffe

· **Label**

3

· **14.4 Verpackungsgruppe**· **ADR, IMDG, IATA**

I

· **14.5 Umweltgefahren:**· **Besondere Kennzeichnung (ADR):**

Umweltgefährdender Stoff, flüssig

Symbol (Fisch und Baum)

· **14.6 Besondere Vorsichtsmaßnahmen für den Verwender**· **Nummer zur Kennzeichnung der Gefahr (Kemler-Zahl):**

Achtung: Entzündbare flüssige Stoffe

33

· **EMS-Nummer:**

3-07

· **Stowage Category**

E

· **14.7 Massengutbeförderung gemäß Anhang II des****MARPOL-Übereinkommens und gemäß IBC-Code** Nicht anwendbar.· **Transport/weitere Angaben:**· **ADR**· **Begrenzte Menge (LQ)**

0

· **Freigestellte Mengen (EQ)**

Code: E3

Höchste Nettomenge je Innenverpackung: 30 ml

Höchste Nettomenge je Außenverpackung: 300 ml

· **Beförderungskategorie**

1

· **Tunnelbeschränkungscode**

D/E

(Fortsetzung auf Seite 8)

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· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	0
· <b>Excepted quantities (EQ)</b>	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· <b>UN "Model Regulation":</b>	UN 1265 PENTANE, 3, I, UMWELTGEFÄHRDEND

### ABSCHNITT 15: Rechtsvorschriften

- **15.1 Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch**
- **Richtlinie 2012/18/EU**
- **Namentlich aufgeführte gefährliche Stoffe - ANHANG I** Der Stoff ist nicht enthalten.
- **Seveso-Kategorie**  
P5a ENTZÜNDBARE FLÜSSIGKEITEN  
E2 Gewässergefährdend
- **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der unteren Klasse 10 t**
- **Mengenschwelle (in Tonnen) für die Anwendung in Betrieben der oberen Klasse 50 t**
- **VERORDNUNG (EG) Nr. 1907/2006 ANHANG XVII** Beschränkungsbedingungen: 3, 40
- **Richtlinie 2011/65/EU zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten – Anhang II**  
Der Stoff ist nicht enthalten.
- **VERORDNUNG (EU) 2019/1148**
- **Anhang I - BESCHRÄNKTE AUSGANGSSTOFFE FÜR EXPLOSIVSTOFFE (Oberer Konzentrationsgrenzwert für eine Genehmigung nach Artikel 5 Absatz 3)**  
Der Stoff ist nicht enthalten.
- **Anhang II - MELDEPFLICHTIGE AUSGANGSSTOFFE FÜR EXPLOSIVSTOFFE**  
Der Stoff ist nicht enthalten.
- **Verordnung (EG) Nr. 273/2004 betreffend Drogenausgangsstoffe** Der Stoff ist nicht enthalten.
- **Verordnung (EG) Nr. 111/2005 zur Festlegung von Vorschriften für die Überwachung des Handels mit Drogenaustauschstoffen zwischen der Gemeinschaft und Drittländern**  
Der Stoff ist nicht enthalten.
- **Nationale Vorschriften:**
- **Technische Anleitung Luft:**

Klasse	Anteil in %
NK	100,0
- **Wassergefährdungsklasse: WGK 2 (Listeneinstufung):** deutlich wassergefährdend.
- **Sonstige Vorschriften, Beschränkungen und Verbotsverordnungen**  
Das Produkt unterliegt der Anlage 2 der Chemikalienverbotsverordnung (ChemVerbotsV) - Anforderungen in Bezug auf die Abgabe
- **15.2 Stoffsicherheitsbeurteilung:** Eine Stoffsicherheitsbeurteilung wurde nicht durchgeführt.

### ABSCHNITT 16: Sonstige Angaben

Die Angaben stützen sich auf den heutigen Stand unserer Kenntnisse, sie stellen jedoch keine Zusicherung von Produkteigenschaften dar und begründen kein vertragliches Rechtsverhältnis.

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**Abkürzungen und Akronyme:**

*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)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Flam. Liq. 1: Entzündbare Flüssigkeiten – Kategorie 1*

*STOT SE 3: Spezifische Zielorgan-Toxizität (einmalige Exposition) – Kategorie 3*

*Asp. Tox. 1: Aspirationsgefahr – Kategorie 1*

*Aquatic Chronic 2: Gewässergefährdend - langfristig gewässergefährdend – Kategorie 2*

DE

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

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**SEZIONE 1: Identificazione della sostanza o della miscela e della società/impresa**

· **1.1 Identificatore del prodotto**

· **Denominazione commerciale:** isopentano

· **Articolo numero:** 18550

· **Numero CAS:**

78-78-4

· **Numeri CE:**

201-142-8

· **Numero indice:**

601-006-00-1

· **1.2 Usi identificati pertinenti della sostanza o della miscela e usi sconsigliati**

Non sono disponibili altre informazioni.

· **Utilizzazione della Sostanza / del Preparato** Prodotti chimici per laboratorio

· **1.3 Informazioni sul fornitore della scheda di dati di sicurezza**

· **Produttore/fornitore:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: [info@emsdiasum.com](mailto:info@emsdiasum.com)

[www.emsdiasum.com](http://www.emsdiasum.com)

Societa Italiana Chimici

Via Rio Nell Ellba 140

00138 Rome, Italy

Tel: 39 06 8800211

Fax: 39 30 06 8815313

Web: [www.sichim.com](http://www.sichim.com)

· **Informazioni fornite da:** Product safety department

· **1.4 Numero telefonico di emergenza:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

**SEZIONE 2: Identificazione dei pericoli**

· **2.1 Classificazione della sostanza o della miscela**

· **Classificazione secondo il regolamento (CE) n. 1272/2008**



GHS02 fiamma

Flam. Liq. 1      H224 Liquido e vapori altamente infiammabili.



GHS08 pericolo per la salute

Asp. Tox. 1      H304 Può essere letale in caso di ingestione e di penetrazione nelle vie respiratorie.



GHS09 ambiente

Aquatic Chronic 2 H411 Tossico per gli organismi acquatici con effetti di lunga durata.

(continua a pagina 2)

## Scheda di dati di sicurezza ai sensi del regolamento 1907/2006/CE, Articolo 31

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GHS07

STOT SE 3      H336 Può provocare sonnolenza o vertigini.

- **2.2 Elementi dell'etichetta**
- **Etichettatura secondo il regolamento (CE) n. 1272/2008**  
La sostanza è classificata ed etichettata conformemente al regolamento CLP.
- **Pittogrammi di pericolo**



GHS02    GHS07    GHS08    GHS09

- **Avvertenza Pericolo**
- **Indicazioni di pericolo**  
H224 Liquido e vapori altamente infiammabili.  
H336 Può provocare sonnolenza o vertigini.  
H304 Può essere letale in caso di ingestione e di penetrazione nelle vie respiratorie.  
H411 Tossico per gli organismi acquatici con effetti di lunga durata.
- **Consigli di prudenza**  
P210      Tenere lontano da fonti di calore, superfici riscaldate, scintille, fiamme e altre fonti di innesco. Vietato fumare.  
P301+P310      IN CASO DI INGESTIONE: contattare immediatamente un CENTRO ANTIVELENI/un medico.  
P331      NON provocare il vomito.  
P303+P361+P353      IN CASO DI CONTATTO CON LA PELLE (o con i capelli): togliersi di dosso immediatamente tutti gli indumenti contaminati. Sciacquare la pelle [o fare una doccia].  
P405      Conservare sotto chiave.  
P501      Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.
- **Ulteriori dati:**  
EUH066 L'esposizione ripetuta può provocare secchezza o screpolature della pelle.
- **2.3 Altri pericoli**
- **Risultati della valutazione PBT e vPvB**
- **PBT:** Non applicabile.
- **vPvB:** Non applicabile.

### SEZIONE 3: Composizione/informazioni sugli ingredienti

- **3.1 Caratteristiche chimiche: Sostanze**
- **Numero CAS**  
78-78-4 isopentano
- **Numero/i di identificazione**
- **Numeri CE:** 201-142-8
- **Numero indice:** 601-006-00-1

### SEZIONE 4: Misure di primo soccorso

- **4.1 Descrizione delle misure di primo soccorso**
- **Inalazione:** Portare in zona ben areata, in caso di disturbi consultare il medico.

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- **Contatto con la pelle:** Generalmente il prodotto non è irritante per la pelle.
- **Contatto con gli occhi:** Lavare con acqua corrente per alcuni minuti tenendo le palpebre ben aperte.
- **Ingestione:** Se il dolore persiste consultare il medico.
- **4.2 Principali sintomi ed effetti, sia acuti che ritardati** Non sono disponibili altre informazioni.
- **4.3 Indicazione dell'eventuale necessità di consultare immediatamente un medico e di trattamenti speciali**  
Non sono disponibili altre informazioni.

### SEZIONE 5: Misure antincendio

- **5.1 Mezzi di estinzione**
- **Mezzi di estinzione idonei:**  
CO<sub>2</sub>, polvere o acqua nebulizzata. Estinguere gli incendi di grosse dimensioni con acqua nebulizzata o con schiuma resistente all'alcool.
- **Mezzi di estinzione inadatti per motivi di sicurezza:** Getti d'acqua
- **5.2 Pericoli speciali derivanti dalla sostanza o dalla miscela** Non sono disponibili altre informazioni.
- **5.3 Raccomandazioni per gli addetti all'estinzione degli incendi**
- **Mezzi protettivi specifici:** Non sono richiesti provvedimenti particolari.

### SEZIONE 6: Misure in caso di rilascio accidentale

- **6.1 Precauzioni personali, dispositivi di protezione e procedure in caso di emergenza**  
Indossare equipaggiamento protettivo. Allontanare le persone non equipaggiate.
- **6.2 Precauzioni ambientali:**  
Impedire l'entrata del prodotto nelle fognature o nei corpi d'acqua.  
In caso di infiltrazione nei corpi d'acqua o nelle fognature avvertire le autorità competenti.  
Impedire infiltrazioni nella fognatura/nelle acque superficiali/nelle acque freatiche.
- **6.3 Metodi e materiali per il contenimento e per la bonifica:**  
Raccogliere il liquido con materiale assorbente (sabbia, tripoli, legante di acidi, legante universale, segatura).  
Smaltimento del materiale contaminato conformemente al punto 13.  
Provvedere ad una sufficiente areazione.
- **6.4 Riferimento ad altre sezioni**  
Per informazioni relative ad una manipolazione sicura, vedere capitolo 7.  
Per informazioni relative all'equipaggiamento protettivo ad uso personale vedere Capitolo 8.  
Per informazioni relative allo smaltimento vedere Capitolo 13.

### SEZIONE 7: Manipolazione e immagazzinamento

- **7.1 Precauzioni per la manipolazione sicura** Aprire e manipolare i recipienti con cautela.
- **Indicazioni in caso di incendio ed esplosione:**  
Tenere lontano da fonti di calore, non fumare.  
Adottare provvedimenti contro cariche elettrostatiche.
- **7.2 Condizioni per lo stoccaggio sicuro, comprese eventuali incompatibilità**
- **Stoccaggio:**
- **Requisiti dei magazzini e dei recipienti:** Conservare in ambiente fresco.
- **Indicazioni sullo stoccaggio misto:** Non necessario.
- **Ulteriori indicazioni relative alle condizioni di immagazzinamento:**  
Mantenere i recipienti ermeticamente chiusi.  
Chiudere i recipienti non a tenuta di gas.  
Conservare in luogo fresco e asciutto in fusti ben chiusi.  
Proteggere dal calore e dai raggi diretti del sole.

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· **7.3 Usi finali particolari** Non sono disponibili altre informazioni.

### SEZIONE 8: Controllo dell'esposizione/protezione individuale

- **8.1 Parametri di controllo**
- **Ulteriori indicazioni sulla struttura di impianti tecnici:** Nessun dato ulteriore, vedere punto 7.

· **Componenti i cui valori limite devono essere tenuti sotto controllo negli ambienti di lavoro:****78-78-4 isopentano**TWA Valore a lungo termine: 1771 mg/m<sup>3</sup>, 600 ppmVL Valore a lungo termine: 2000 mg/m<sup>3</sup>, 667 ppm· **Ulteriori indicazioni:** Le liste valide alla data di compilazione sono state usate come base.· **8.2 Controlli dell'esposizione**· **Mezzi protettivi individuali:**· **Norme generali protettive e di igiene del lavoro:**

Tenere lontano da cibo, bevande e foraggi.

Lavarsi le mani prima dell'intervallo o a lavoro terminato.

· **Maschera protettiva:** Non necessario.· **Guanti protettivi:**

Il materiale dei guanti deve essere impermeabile e stabile contro il prodotto/ la sostanza/ la formulazione.

A causa della mancanza di tests non può essere consigliato alcun tipo di materiale per i guanti con cui manipolare il prodotto / la formulazione / la miscela di sostanze chimiche.

Scelta del materiale dei guanti in considerazione dei tempi di passaggio, dei tassi di permeazione e della degradazione.

· **Materiale dei guanti**

La scelta dei guanti adatti non dipende soltanto dal materiale bensì anche da altre caratteristiche di qualità variabili da un produttore a un altro.

· **Tempo di permeazione del materiale dei guanti**

Richiedere dal fornitore dei guanti il tempo di passaggio preciso il quale deve essere rispettato.

· **Occhiali protettivi:**

Occhiali protettivi a tenuta

### SEZIONE 9: Proprietà fisiche e chimiche

· **9.1 Informazioni sulle proprietà fisiche e chimiche fondamentali**· **Indicazioni generali**· **Aspetto:**

Forma: Liquido

Colore: Incolore

· **Odore:** Caratteristico· **Soglia olfattiva:** Non definito.· **valori di pH:** Non definito.· **Cambiamento di stato**

Punto di fusione/punto di congelamento: -159,9 °C

Punto di ebollizione iniziale e intervallo di ebollizione: 27,9 °C

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· <b>Punto di infiammabilità:</b>	-51 °C
· <b>Infiammabilità (solidi, gas):</b>	Non applicabile.
· <b>Temperatura di accensione:</b>	420 °C
· <b>Temperatura di decomposizione:</b>	Non definito.
· <b>Temperatura di autoaccensione:</b>	Non definito.
· <b>Proprietà esplosive:</b>	Prodotto non è esplosivo, è tuttavia possibile la formazione di miscele di vapori/aria esplosive.
· <b>Limiti di infiammabilità:</b>	
<b>Inferiore:</b>	1,4 Vol %
<b>Superiore:</b>	7,6 Vol %
· <b>Tensione di vapore a 20 °C:</b>	793 hPa
· <b>Densità a 20 °C:</b>	0,62 g/cm <sup>3</sup>
· <b>Densità relativa</b>	Non definito.
· <b>Densità di vapore:</b>	Non definito.
· <b>Velocità di evaporazione</b>	Non definito.
· <b>Solubilità in/Miscibilità con acqua:</b>	Poco e/o non miscibile.
· <b>Coefficiente di ripartizione: n-ottanolo/acqua:</b>	Non definito.
· <b>Viscosità:</b>	
<b>Dinamica a 20 °C:</b>	2,14 mPas
<b>Cinematica:</b>	Non definito.
· <b>9.2 Altre informazioni</b>	Non sono disponibili altre informazioni.

**SEZIONE 10: Stabilità e reattività**

- **10.1 Reattività** Non sono disponibili altre informazioni.
- **10.2 Stabilità chimica**
- **Decomposizione termica/ condizioni da evitare:** Il prodotto non si decompone se utilizzato secondo le norme.
- **10.3 Possibilità di reazioni pericolose** Non sono note reazioni pericolose.
- **10.4 Condizioni da evitare** Non sono disponibili altre informazioni.
- **10.5 Materiali incompatibili:** Non sono disponibili altre informazioni.
- **10.6 Prodotti di decomposizione pericolosi:** Non sono noti prodotti di decomposizione pericolosi.

**SEZIONE 11: Informazioni tossicologiche**

- **11.1 Informazioni sugli effetti tossicologici**
- **Tossicità acuta** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Irritabilità primaria:**
- **Corrosione/irritazione cutanea** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Lesioni oculari gravi/irritazioni oculari gravi**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Sensibilizzazione respiratoria o cutanea**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.

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- **Ulteriori dati tossicologici:**
- **Effetti CMR (cancerogenicità, mutagenicità e tossicità per la riproduzione)**
- **Mutagenicità delle cellule germinali**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Cancerogenicità** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità per la riproduzione** Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione singola**  
Può provocare sonnolenza o vertigini.
- **Tossicità specifica per organi bersaglio (STOT) - esposizione ripetuta**  
Basandosi sui dati disponibili i criteri di classificazione non sono soddisfatti.
- **Pericolo in caso di aspirazione**  
Può essere letale in caso di ingestione e di penetrazione nelle vie respiratorie.

### SEZIONE 12: Informazioni ecologiche

- **12.1 Tossicità**
- **Tossicità acquatica:** Non sono disponibili altre informazioni.
- **12.2 Persistenza e degradabilità** Non sono disponibili altre informazioni.
- **12.3 Potenziale di bioaccumulo** Non sono disponibili altre informazioni.
- **12.4 Mobilità nel suolo** Non sono disponibili altre informazioni.
- **Effetti tossici per l'ambiente:**
- **Osservazioni:** Tossico per i pesci.
- **Ulteriori indicazioni in materia ambientale:**
- **Ulteriori indicazioni:**  
Pericolosità per le acque classe 2 (D) (Classif. secondo le liste): pericoloso  
Non immettere nelle acque freatiche, nei corsi d'acqua o nelle fognature.  
Pericolo per le acque potabili anche in caso di perdite nel sottosuolo di piccole quantità di prodotto.  
Tossico per pesci e plancton.  
tossico per gli organismi acquatici
- **12.5 Risultati della valutazione PBT e vPvB**
- **PBT:** Non applicabile.
- **vPvB:** Non applicabile.
- **12.6 Altri effetti avversi** Non sono disponibili altre informazioni.

### SEZIONE 13: Considerazioni sullo smaltimento

- **13.1 Metodi di trattamento dei rifiuti**
- **Consigli:** Non smaltire il prodotto insieme ai rifiuti domestici Non immettere nelle fognature.
- **Imballaggi non puliti:**
- **Consigli:** Smaltimento in conformità con le disposizioni amministrative.

### SEZIONE 14: Informazioni sul trasporto

- |   |   |
|---|---|
| · <b>14.1 Numero ONU</b>                  |   |
| · <b>ADR, IMDG, IATA</b>                  | UN1265                                  |
| · <b>14.2 Nome di spedizione dell'ONU</b> |   |
| · <b>ADR</b>                              | 1265 PENTANI, PERICOLOSO PER L'AMBIENTE |
| · <b>IMDG, IATA</b>                       | PENTANES                                |

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IT

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· **14.3 Classi di pericolo connesso al trasporto**· **ADR**

· **Classe** 3 Liquidi infiammabili  
· **Etichetta** 3

· **IMDG, IATA**

· **Class** 3 Liquidi infiammabili  
· **Label** 3

· **14.4 Gruppo di imballaggio**· **ADR, IMDG, IATA** I· **14.5 Pericoli per l'ambiente:**· **Marcatura speciali (ADR):** Materia pericolosa dal punto di vista dell'ambiente, liquida

Simbolo (pesce e albero)

· **14.6 Precauzioni speciali per gli utilizzatori**

Attenzione: Liquidi infiammabili

· **N° identificazione pericolo (Numero Kemler):**

33

· **Numero EMS:**

3-07

· **Stowage Category**

E

· **14.7 Trasporto di rinfuse secondo l'allegato II di****MARPOL ed il codice IBC**

Non applicabile.

· **Trasporto/ulteriori indicazioni:**· **ADR**· **Quantità limitate (LQ)**

0

· **Quantità esenti (EQ)**

Codice: E3

Quantità massima netta per imballaggio interno: 30 ml

Quantità massima netta per imballaggio esterno: 300 ml

· **Categoria di trasporto**

I

· **Codice di restrizione in galleria**

D/E

· **IMDG**· **Limited quantities (LQ)**

0

· **Excepted quantities (EQ)**

Code: E3

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 300 ml

· **UN "Model Regulation":**

UN 1265 PENTANI, 3, I, PERICOLOSO PER L'AMBIENTE

IT

(continua a pagina 8)

**Scheda di dati di sicurezza**  
ai sensi del regolamento 1907/2006/CE, Articolo 31

Stampato il: 15.03.2022

Revisione: 15.03.2022

**Denominazione commerciale: isopentano**

(Segue da pagina 7)

**SEZIONE 15: Informazioni sulla regolamentazione**

- **15.1 Disposizioni legislative e regolamentari su salute, sicurezza e ambiente specifiche per la sostanza o la miscela**
  - **Direttiva 2012/18/UE**
  - **Sostanze pericolose specificate - ALLEGATO I** La sostanza non è contenuta
  - **Categoria Seveso**  
P5a **LIQUIDI INFIAMMABILI**  
E2 Pericoloso per l'ambiente acquatico
  - **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia inferiore 10 t**
  - **Quantità limite (tonnellate) ai fini dell'applicazione dei requisiti di soglia superiore 50 t**
  - **REGOLAMENTO (CE) n. 1907/2006 ALLEGATO XVII** Restrizioni: 3, 40
  - **Direttiva 2011/65/UE sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche - Allegato II**  
La sostanza non è contenuta
  - **REGOLAMENTO (UE) 2019/1148**
  - **Allegato I - PRECURSORI DI ESPLOSIVI SOGGETTI A RESTRIZIONI (Valore limite superiore ai fini della concessione di licenze a norma dell'articolo 5, paragrafo 3)**  
La sostanza non è contenuta
  - **Allegato II - PRECURSORI DI ESPLOSIVI SOGGETTI A SEGNALAZIONE** La sostanza non è contenuta
  - **Regolamento (CE) n. 273/2004 relativo ai precursori di droghe** La sostanza non è contenuta
  - **Regolamento (CE) N. 111/2005 recante norme per il controllo del commercio dei precursori di droghe tra la Comunità e i paesi terzi**  
La sostanza non è contenuta
  - **Disposizioni nazionali:**
  - **Istruzione tecnica aria:**
- | Classe | quota in % |
|--------|------------|
| NC     | 100,0      |
- **15.2 Valutazione della sicurezza chimica:** Una valutazione della sicurezza chimica non è stata effettuata.

**SEZIONE 16: Altre informazioni**

*I dati sono riportati sulla base delle nostre conoscenze attuali, non rappresentano tuttavia alcuna garanzia delle caratteristiche del prodotto e non motivano alcun rapporto giuridico contrattuale.*

- **Abbreviazioni e acronimi:**  
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)  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
Flam. Liq. 1: Liquidi infiammabili – Categoria 1  
STOT SE 3: Tossicità specifica per organi bersaglio (esposizione singola) – Categoria 3  
Asp. Tox. 1: Pericolo in caso di aspirazione – Categoria 1  
Aquatic Chronic 2: Pericoloso per l'ambiente acquatico - pericolo a lungo termine per l'ambiente acquatico – Categoria 2

물질안전보건자료  
GHS에 따라

인쇄일자: 2022.03.15

개정: 2022.03.15

**1 화학제품과 회사에 관한 정보**

- 제품 식별자
- 제품명: **2-Methyl Butane, Reagent**
- 상품번호: 18550
- CAS-번호  
78-78-4
- EC 의번호:  
201-142-8
- 색인 번호:  
601-006-00-1
- 해당 순물질이나 혼합물의 관련 하위용도 및 사용금지용도
- 제품의 권고 용도와 사용상의 제한: Methyl Butane, Reagent
- 제품의 권고 용도와 사용상의 제한: 실험실 화학품
- 안전데이터표(Safety Data Sheet)내 공급업체 관련 상세 정보
- 제조자/수입자/유통업자 정보:  
Electron Microscopy Sciences  
1560 Industry Road  
USA-Hatfield, PA 19440  
Tel: 215-412-8400 Fax: 215-412-8450  
email: info@emsdiasum.com  
www.emsdiasum.com
- Samchang Commercial Co., Ltd.  
Yeo Eui Do  
PO Box 1110  
Seoul, Korea  
Tel: 82 2 703 3040  
Fax: 82 2 717 3298
- 
- Daedok Science, Co. Ltd.  
34141 E10 Korea Advanced Institute of Science  
Guseong-Dong, Yuseong-gu, Daejeon,  
Korea  
Phone: 82 42 710 2091  
Fax: 82 42 367 0005  
Website: www.labsmro.com
- 추가적인 정보 획득 가능: Product safety department
- 비상연락 전화번호:  
ChemTrec 1-800-424-9300 Contract CCN7661  
1-703-527-3887

**2 유해성·위험성**

- 순물질 또는 혼합물의 분류



화염

인화성 액체 – 구분1

H224 극인화성 액체 및 증기



건강에 위험

흡인 유해성 – 구분1

H304 삼켜서 기도로 유입되면 치명적일 수 있음

(2 쪽에 계속)

# 물질안전보건자료 GHS에 따라

인쇄일자: 2022.03.15

개정: 2022.03.15

**제품명: 2-Methyl Butane, Reagent**

(1 쪽부터계속)



환경

수생환경 유해성 - 만성 - 구분2      H411 장기적인 영향에 의해 수생생물에게 유독함



특정표적장기 독성 - 1회 노출- 구분3 H336 졸음 또는 현기증을 일으킬 수 있음

- 라벨표기 요소
- GHS 라벨 요소 본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.
- GHS 그림문자



GHS02    GHS07    GHS08    GHS09

- 신호어 위험
- 유해·위험문구  
극인화성 액체 및 증기  
졸음 또는 현기증을 일으킬 수 있음  
삼켜서 기도로 유입되면 치명적일 수 있음  
장기적인 영향에 의해 수생생물에게 유독함
- 예방조치문구  
열·스파크·화염·고열로부터 멀리하십시오 - 금연  
삼켰을 시: 즉시 독성물질센터/병원 연락 필요.  
토하게 하지 마시오.  
피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하십시오. 피부를 물로 씻으시오/샤워하십시오.  
밀봉하여 저장하십시오.  
(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하십시오.
- 기타 유해성
- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.

### 3 구성성분의 명칭 및 함유량

- 화학적 특성: 화학물질
- CAS-번호표시  
78-78-4 2-Methyl Butane, Reagent
- 식별 번호
- EC 의번호: 201-142-8
- 색인 번호: 601-006-00-1

### 4 응급조치 요령

- 응급조치요령 내용
- 흡입했을 때: 신선한 공기를 쐬고, 통증이 있을 때는 의료진의 도움을 구한다.
- 피부에 접촉했을 때: 일반적으로 이 제품은 피부에 자극적이지 않다.

(3 쪽에계속)

# 물질안전보건자료 GHS에 따라

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**제품명: 2-Methyl Butane, Reagent**

(2 쪽부터계속)

- 눈에 들어갔을 때: 흐르는 물에 눈을 몇분동안 씻어낸다.
- 먹었을 때: 증상이 지속될 경우에는 의사와 상담한다.
- 기타 의사의 주의사항:
- 가장 중요한 급·만성 증상 및 영향 추가적인 정보가 존재하지 않습니다.
- 즉각적인 의료처치 및 특별치료가 필요함을 시사하는 징후 추가적인 정보가 존재하지 않습니다.

## 5 폭발·화재시 대처방법

- 소화제
- 적절한 소화제: 이산화탄소, 진화용 석회가루 또는 물방사를 사용하고, 더 큰 화재는 물을 분사하거나 알코올이 함유된 제품으로 끈다.
- 부적절한 소화제: 플레트용 물
- 본 화학물질이나 혼합물에서 발생하는 특별 유해성 추가적인 정보가 존재하지 않습니다.
- 소방관에 대한 권고사항
- 화재 진압 시 착용할 보호구 및 예방조치: 특별한 조치가 필요없음.

## 6 누출 사고 시 대처방법

- 개인적 예방조치, 보호장비 및 응급처치 절차 안전장비 착용하고, 무방비의 사람은 격리시킨다.
- 환경 관련 예방조치: 제품이 하수도나 하천으로도 달하지 못하도록 한다. 하천이나하수로유입되었을경우해당관청에보고한다. 하수도망/해수면위의물/지하수로도달하지않게한다.
- 밀폐 및 정화 방법과 소재: 액체가 혼합된 물질 (모래, 규조토, 산성 결합물, 일반 결합물, 톱밥)에 흡입되도록 한다. 항목 13에 따라 오염된 물질을 쓰레기로 처분한다. 충분한 환기가 되도록 한다.
- 타 섹션 참조: 안전 관리에 대한 정보는 제7 장을 참고하십시오. 개인 보호 장비에 대한 정보는 제8 장을 참고하십시오. 쓰레기 처리에 대한 정보는 제13 장을 참고하십시오.

## 7 취급 및 저장방법

- 취급:
- 안전 취급을 위한 예방조치 조심스럽게용기를개봉하거나취급한다.
- 화재 및 폭발 사고 예방대책에 관한 정보: 발화요소는 멀리둔다-금연. 정전기의충전으로부터 보호한다.
- 혼합위험성 등 안전 저장 조건
- 보관:
- 안전한 저장 방법: 차가운 장소에 보관한다.
- 하나의 공동 보관 시설에 대한 보관 관련 정보: 필요없음
- 보관 조건에 관한 추가적인 정보: 용기를새지않게밀폐한채보관한다. 용기를가스가새지않게밀폐시킨다. 밀폐된 용기속에서늘하고건조하게보관한다. 열이나직사광선으로부터보호한다.

(4 쪽에계속)

# 물질안전보건자료 GHS에 따라

인쇄일자: 2022.03.15

개정: 2022.03.15

**제품명: 2-Methyl Butane, Reagent**

(3 쪽부터계속)

· 구체적 최종 사용자 추가적인 정보가 존재하지 않습니다.

## 8 노출방지 및 개인보호구

· **첨단시설 디자인에 대한 추가정보:** 더 이상의 자료는 없음. 항목 7 을 참고하시 오.

· 통제 변수

· **화학물질의 노출기준, 생물학적 노출기준 등:**

### 78-78-4 2-Methyl Butane, Reagent

OELV (KR)	단기간의값: 750 ppm 장기간의값: 600 ppm
IOELV (EU)	장기간의값: 3000 mg/m <sup>3</sup> , 1000 ppm
PEL (US)	장기간의값: 2950 mg/m <sup>3</sup> , 1000 ppm
TLV (US)	장기간의값: 1000 ppm

· **추 가 정보:** 제 조 할 당시에 유 효 한 목 록 을 기 초 로 사 용 했 다.

· 노출 통제

· 개인 보호구

· **일반적보호조치및위생조치:**

· 식 료 품, 음 료 수와 사 료 로 부 터 멀 리 떨 어 뜨 려 놓 는 다.

· 휴 식 전 이 나 작 업 이 끝 날 때 마 다 손 을 씻 는 다.

· **호흡기 보호:** 필 요 없 음.

· **손 보호:**

· 장갑재질은제품 / 원료 / 조제를투과시키지않아야하고, 내구성이있어야한다.

· 테 스투 를 하 지 않 았 기 때 문 에 제 품 / 조 제 / 화 학 혼 합 물 에 적 합 한 장 갑 재 질 에 대 한 추 천 이 없 다.

· 투 과 시 간, 침 투 율 과 저 하 를 고 려 해 서 장 갑 재 료 를 선 택 한 다.

· **장갑의재료**

· 적 합 한 장 갑 의 선 정 은 재 질 차 이 뿐 아 니 라 품 질 기 준 의 차 이 도 고 려 하 여 이 루 어 져 야 하 고 제 조 업 자 에 따 라 서 도 다 르 게 선 정 되 어 야 한 다.

· **장 갑 재 료 의 투 과 시 간** 정 확 한 관 통 시 간 은 보 호 장 갑 제 조 자 에 의 하 여 인 지 되 고, 준 수 되 어 야 한 다.

· **눈 보호:**



· **꼭조이는보안경**

## 9 물리화학적 특성

· 기본 물리 및 화학적 특성에 대한 정보

· 일반정보

· 외형

· 물리적 상태:	액체의
· 색:	색소가없는
· 냄새:	특색있는
· 후각역치	알맞지않다.

· **pH:** 알맞지않다.

· 상태변화

· 녹는점/어는점:	-159.9 °C
· 초기 끓는점과 끓는점 범위:	27.9 °C

(5 쪽에계속)



## 물질안전보건자료 GHS에 따라

인쇄일자: 2022.03.15

개정: 2022.03.15

**제품명: 2-Methyl Butane, Reagent**

(4 쪽부터계속)

· 인화점:	-51 °C
· 인화성(고체, 기체):	해당사항 없음.
· 점화온도:	420 °C
· 분해 온도:	알맞지않다.
· 자기점화:	알맞지않다.
· 폭발위험:	이제품은폭발위험성이없지만 , 폭발가능성이있는증기화합물/공기화합물의형성가능성이있다.
· 인화 또는 폭발 범위의 상한/하한 아래로:	1.4 Vol %
위로:	7.6 Vol %
· 증기압 의경우 20 °C:	793 hPa
· 밀도 의경우 20 °C:	0.62 g/cm <sup>3</sup>
· 비중:	알맞지않다.
· 증기밀도:	알맞지않다.
· 증발 속도:	알맞지않다.
· 용해도:	
물:	각각의경우에따라서는거의혼합할수없는
· n 옥탄올/물 분배계수:	알맞지않다.
· 점도:	
역학적 의경우 20 °C:	2.14 mPas
동점성:	알맞지않다.
· 기타 정보	추가적인 정보가 존재하지 않습니다.

### 10 안정성 및 반응성

- 반응성 추가적인 정보가 존재하지 않습니다.
- 화학적 안정성
- 화학적 안정성 및 유해 반응의 가능성 / 피해야 할 조건: 규정에따라사용할경우해체는없다
- 유해반응 가능성 위험한반응으로는알려지지않았다.
- 피해야 할 조건 추가적인 정보가 존재하지 않습니다.
- 혼합 금지 물질: 추가적인 정보가 존재하지 않습니다.
- 유해분해물질: 위험성있는분해물들은알려지지않았다.

### 11 독성에 관한 정보

- 독성학적 영향에 대한 정보
- 급성 독성:
- 일차적 자극 효과:
- 피부 부식성 또는 자극성: 무자극
- 심한 눈 손상 또는 자극성: 무자극.
- 감각화: 민감한영향이없는것으로알려져있다.

KR

(6 쪽에계속)

# 물질안전보건자료 GHS에 따라

인쇄일자: 2022.03.15

개정: 2022.03.15

제품명: 2-Methyl Butane, Reagent

(5 쪽부터계속)


## 12 환경에 미치는 영향

- 독성
- 수생독성: 추가적인 정보가 존재하지 않습니다.
- 지속성 및 분해성 추가적인 정보가 존재하지 않습니다.
- 환경 시스템에서의 행동:
  - 생물농축 잠재성 추가적인 정보가 존재하지 않습니다.
  - 토양내 이동성 추가적인 정보가 존재하지 않습니다.
- 생태독성:
  - 의견: 어류에독이됨
- 추가적인 생태학 정보:
  - 일반 특징:
    - 수질오염등급 2 (목록분류): 수질오염이된 지하수나, 하천으로또는하수도망에도달하지않게한다. 지하수로경미한양이유입되었을경우엔이미식수오염상태이다 하천에서는역시물고기나플랑크톤게는독성이있다. 물속의유기체에독이되는것
- PBT(잔류성, 생물농축성, 독성 물질) 및 vPvB(고 잔류성, 고 생물농축성 물질) 평가 결과
- PBT(잔류성, 생물농축성, 독성 물질): 해당사항 없음.
- vPvB(고 잔류성, 고 생물농축성 물질): 해당사항 없음.
- 기타 부작용 추가적인 정보가 존재하지 않습니다.

## 13 폐기시 주의사항

- 폐기물 처리 방법
- 권고: 생활쓰레기와함께처리되어서는안된다. 하수도망으로유입되어서는안된다.
- 비위생적 포장:
  - 권고: 당국의지침에입각한쓰레기처리.

## 14 운송에 필요한 정보

· 유엔 번호	
· ADR, IMDG, IATA	UN1265
· UN 적정 선적명	
· ADR	1265 PENTANES, ENVIRONMENTALLY HAZARDOUS
· IMDG, IATA	PENTANES
· 교통 위험 클래스	
· ADR	
	
· 등급	3 발화성용액

(7 쪽에계속)


물질안전보건자료  
GHS에 따라

인쇄일자: 2022.03.15

개정: 2022.03.15

제품명: 2-Methyl Butane, Reagent

(6 쪽부터계속)

· 위험물 라벨	3
· IMDG, IATA	
	
· Class	3 발화성용액
· Label	3
· 용기등급	
· ADR, IMDG, IATA	I
· 환경적 유해물질:	이물질은환경을오염시킨다
· 특수 마킹 (ADR):	심벌 (물고기와 나무)
· 이용자 특별 예방조치	경고: 발화성용액
· 위험 코드:	33
· EMS-번호:	3-07
· Stowage Category	E
· MARPOL73/78(선박으로부터의 해양오염방지협약) 부속서2 및 IBC Code(국제선적화물코드)에 따른 벌크(bulk) 운송	해당사항 없음.
· 운 송/추가 정보:	
· ADR	
· 한정 수량 (LQ)	0
· Excepted quantities (EQ)	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· 운송 구분	1
· 터널 제한 코드	D/E
· IMDG	
· Limited quantities (LQ)	0
· Excepted quantities (EQ)	Code: E3 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 300 ml
· UN "모범 규제":	UN 1265 PENTANES, 3, I, ENVIRONMENTALLY HAZARDOUS

15 법적 규제현황

- 산업안전보건법에 의한 규제:
- 제조 등 금지물질: 성분이포함되어있지않다
- 허가대상물질: 성분이포함되어있지않다
- 관리대상유해물질: 성분이포함되어있지않다
- 작업환경측정 대상 유해인자 성분이포함되어있지않다
- 특수건강진단 대상 유해인자 성분이포함되어있지않다
- 해당 순물질 또는 혼합물에 대한 안전, 보건 및 환경 규제/법률 추가적인 정보가 존재하지 않습니다.
- Korean Existing Chemical Inventory KE-23537
- 화학물질관리법
- 사고대비물질 성분이포함되어있지않다

(8 쪽에계속)

# 물질안전보건자료 GHS에 따라

인쇄일자: 2022.03.15

개정: 2022.03.15

## 제품명: 2-Methyl Butane, Reagent

(7 쪽부터 계속)

- 금지물질 성분이 포함되어 있지 않다
- 제한물질 성분이 포함되어 있지 않다
- 유독물질 성분이 포함되어 있지 않다
- 허가물질 성분이 포함되어 있지 않다
- 위험물안전관리법 (위험물 및 지정수량) 제 4: 50 리터
- 등록 또는 신고 면제대상 화학물질 성분이 포함되어 있지 않다
- '21년까지 등록하여야 할 암, 돌연변이, 생식능력 이상을 일으키거나 일으킬 우려가 있는 기존화학물질 성분이 포함되어 있지 않다
- 중점관리물질의 지정
- 표1 중점관리물질(제2조 관련) 성분이 포함되어 있지 않다
- 표2 중점관리물질(제2조 관련) 성분이 포함되어 있지 않다
- GHS 라벨 요소 본 화학물질은 화학물질의 분류 및 표기에 관한 국제조화시스템(GHS)에 따라 분류 및 표기되었습니다.
- GHS 그림문자



GHS02   GHS07   GHS08   GHS09

- 신호어 위험
- 유해·위험문구  
극인화성 액체 및 증기  
줄음 또는 현기증을 일으킬 수 있음  
삼켜서 기도로 유입되면 치명적일 수 있음  
장기적인 영향에 의해 수생생물에게 유독함
- 예방조치문구  
열·스파크·화염·고열로부터 멀리하십시오 - 금연  
삼켰을 시: 즉시 독성물질센터/병원 연락 필요.  
토하게 하지 마시오.  
피부(또는 머리카락)에 묻으면 오염된 모든 의복은 벗거나 제거하십시오. 피부를 물로 씻으시오/샤워하십시오.  
밀봉하여 저장하십시오.  
(지방/지역/국가/국제 규정에 따라) 에 내용물/용기를 폐기하십시오.
- 화학물질 안전성 평가: 화학물질 안전성 평가가 수행되지 않음

## 16 그 밖의 참고사항

이 보고는 우리 지식에 대한 오늘날의 상태에 대하여 평가하고 있다  
하지만 이 보고서는 생산 특성에 관한 보증은 기술하지 않았으며 계약적인 법률 관계에 기반을 두고 있지 않다

- 담당자:
- 최초 작성일자: 2022.03.15
- 개정 횟수 및 최종 개정일자: 1 / 2022.03.15
- 약어와 두문자어:  
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  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative

# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 15.03.2022

Revisión: 15.03.2022

### SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

#### · 1.1 Identificador del producto

· **Nombre comercial:** isopentano

· **Número del artículo:** 18550

· **Número CAS:**

78-78-4

· **Número CE:**

201-142-8

· **Número de clasificación:**

601-006-00-1

· **1.2 Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados**

No existen más datos relevantes disponibles.

· **Utilización del producto / de la elaboración** Sustancias químicas de laboratorio

· **1.3 Datos del proveedor de la ficha de datos de seguridad**

· **Fabricante/distribuidor:**

Electron Microscopy Sciences

1560 Industry Road

USA-Hatfield, PA 19440

Tel: 215-412-8400 Fax: 215-412-8450

email: [info@emsdiasum.com](mailto:info@emsdiasum.com)

[www.emsdiasum.com](http://www.emsdiasum.com)

Aname

C/ Perez Galdos no. 2

28693 Quijorna

Madrid, Spain

Tel: +34.91.816.89.50

Fax: +34.91.816.85.94

email: [ventas@aname.es](mailto:ventas@aname.es)

· **Área de información:** Product safety department

· **1.4 Teléfono de emergencia:**

ChemTrec 1-800-424-9300 Contract CCN7661

1-703-527-3887

### SECCIÓN 2: Identificación de los peligros

· **2.1 Clasificación de la sustancia o de la mezcla**

· **Clasificación con arreglo al Reglamento (CE) n° 1272/2008**



GHS02 llama

Flam. Liq. 1

H224 Líquido y vapores extremadamente inflamables.



GHS08 peligro para la salud

Asp. Tox. 1

H304 Puede ser mortal en caso de ingestión y penetración en las vías respiratorias.



GHS09 medio ambiente

Aquatic Chronic 2 H411 Tóxico para los organismos acuáticos, con efectos nocivos duraderos.

( se continua en página 2 )

# Ficha de datos de seguridad

## según 1907/2006/CE, Artículo 31

fecha de impresión 15.03.2022

Revisión: 15.03.2022

Nombre comercial: isopentano

( se continua en página 1 )



GHS07

STOT SE 3 H336 Puede provocar somnolencia o vértigo.

- **2.2 Elementos de la etiqueta**
- **Etiquetado con arreglo al Reglamento (CE) n° 1272/2008**  
La sustancia se ha clasificado y etiquetado de conformidad con el reglamento CLP.
- **Pictogramas de peligro**



GHS02

GHS07

GHS08

GHS09

- **Palabra de advertencia Peligro**
- **Indicaciones de peligro**  
H224 Líquido y vapores extremadamente inflamables.  
H336 Puede provocar somnolencia o vértigo.  
H304 Puede ser mortal en caso de ingestión y penetración en las vías respiratorias.  
H411 Tóxico para los organismos acuáticos, con efectos nocivos duraderos.
- **Consejos de prudencia**  
P210 Mantener alejado del calor, de superficies calientes, de chispas, de llamas abiertas y de cualquier otra fuente de ignición. No fumar.  
P301+P310 EN CASO DE INGESTIÓN: Llamar inmediatamente a un CENTRO DE TOXICOLOGÍA/ médico.  
P331 NO provocar el vómito.  
P303+P361+P353 EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitar inmediatamente toda la ropa contaminada. Enjuagar la piel con agua [o ducharse].  
P405 Guardar bajo llave.  
P501 Eliminar el contenido o el recipiente conforme a la reglamentación local/regional/nacional/ internacional.
- **Datos adicionales:**  
EUH066 La exposición repetida puede provocar sequedad o formación de grietas en la piel.
- **2.3 Otros peligros**
- **Resultados de la valoración PBT y mPmB**
- **PBT:** No aplicable.
- **mPmB:** No aplicable.

### SECCIÓN 3: Composición/información sobre los componentes

- **3.1 Caracterización química: Sustancias**
- **Denominación N° CAS**  
78-78-4 isopentano
- **Número(s) de identificación**
- **Número CE:** 201-142-8
- **Número de clasificación:** 601-006-00-1

### SECCIÓN 4: Primeros auxilios

- **4.1 Descripción de los primeros auxilios**
- **En caso de inhalación del producto:** Suministrar aire fresco. En caso de trastornos, consultar al médico.

( se continua en página 3 )

# Ficha de datos de seguridad

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Nombre comercial: isopentano

( se continua en página 2 )

- **En caso de contacto con la piel:** Por regla general, el producto no irrita la piel.
- **En caso de con los ojos:** Limpiar los ojos abiertos durante varios minutos con agua corriente.
- **En caso de ingestión:** Consultar un médico si los trastornos persisten.
- **4.2 Principales síntomas y efectos, agudos y retardados** No existen más datos relevantes disponibles.
- **4.3 Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente** No existen más datos relevantes disponibles.

### SECCIÓN 5: Medidas de lucha contra incendios

- **5.1 Medios de extinción**
- **Sustancias extintoras apropiadas:**  
CO<sub>2</sub>, polvo extintor o chorro de agua rociada. Combatir incendios mayores con chorro de agua rociada o espuma resistente al alcohol.
- **Sustancias extintoras inapropiadas por razones de seguridad:** Agua a pleno chorro
- **5.2 Peligros específicos derivados de la sustancia o la mezcla** No existen más datos relevantes disponibles.
- **5.3 Recomendaciones para el personal de lucha contra incendios**
- **Equipo especial de protección:** No se requieren medidas especiales.

### SECCIÓN 6: Medidas en caso de vertido accidental

- **6.1 Precauciones personales, equipo de protección y procedimientos de emergencia**  
Llevar puesto equipo de protección. Mantener alejadas las personas sin protección.
- **6.2 Precauciones relativas al medio ambiente:**  
No dejar que se introduzca en el alcantarillado ni que contamine las aguas.  
Al penetrar en las aguas o en el alcantarillado, avisar a las autoridades pertinentes.  
Evitar que penetre en la canalización /aguas de superficie /agua subterráneas.
- **6.3 Métodos y material de contención y de limpieza:**  
Quitar con material absorbente (arena, kieselgur, aglutinante de ácidos, aglutinante universal, aserrín).  
Desechar el material contaminado como vertido según ítem 13.  
Asegurar suficiente ventilación.
- **6.4 Referencia a otras secciones**  
Ver capítulo 7 para mayor información sobre una manipulación segura.  
Ver capítulo 8 para mayor información sobre el equipo personal de protección.  
Para mayor información sobre cómo desechar el producto, ver capítulo 13.

### SECCIÓN 7: Manipulación y almacenamiento

- **7.1 Precauciones para una manipulación segura** Abrir y manejar el recipiente con cuidado.
- **Prevención de incendios y explosiones:**  
Mantener alejadas las fuentes de encendido. No fumar.  
Tomar medidas contra las cargas electrostáticas.
- **7.2 Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades**
- **Almacenamiento:**
- **Exigencias con respecto al almacén y los recipientes:** Almacenar en un lugar fresco.
- **Normas en caso de un almacenamiento conjunto:** No es necesario.
- **Indicaciones adicionales sobre las condiciones de almacenamiento:**  
Mantener el recipiente cerrado herméticamente.  
No cerrar el recipiente estanco al gas.  
Almacenarlo en envases bien cerrados en un lugar fresco y seco.  
Proteger del calor y de la luz directa del sol.

( se continua en página 4 )

# Ficha de datos de seguridad

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fecha de impresión 15.03.2022

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Nombre comercial: isopentano

( se continua en página 3 )

· 7.3 Usos específicos finales No existen más datos relevantes disponibles.

### SECCIÓN 8: Controles de exposición/protección individual

## · 8.1 Parámetros de control

## · Instrucciones adicionales para el acondicionamiento de instalaciones técnicas:

Sin datos adicionales, ver punto 7.

## · Componentes con valores límite admisibles que deben controlarse en el puesto de trabajo:

## 78-78-4 isopentano

LEP	Valor de larga duración: 3000 mg/m <sup>3</sup> , 1000 ppm
VLI	

· Indicaciones adicionales: Como base se han utilizado las listas vigentes en el momento de la elaboración.

## · 8.2 Controles de la exposición

## · Equipo de protección individual:

## · Medidas generales de protección e higiene:

Mantener alejado de alimentos, bebidas y alimentos para animales.

Lavarse las manos antes de las pausas y al final del trabajo.

## · Protección respiratoria: No es necesario.

## · Protección de manos:

El material del guante deberá ser impermeable y resistente al producto / sustancia / preparado.

Ante la ausencia de tests específicos, no se puede recomendar ningún material específico para guantes de protección contra el producto / preparado / mezcla de sustancias químicas.

Selección del material de los guantes en función de los tiempos de rotura, grado de permeabilidad y degradación.

## · Material de los guantes

La elección del guante adecuado no depende únicamente del material, sino también de otras características de calidad, que pueden variar de un fabricante a otro.

## · Tiempo de penetración del material de los guantes

El tiempo de resistencia a la penetración exacto deberá ser pedido al fabricante de los guantes. Este tiempo debe ser respetado.

## · Protección de ojos:



Gafas de protección herméticas

### SECCIÓN 9: Propiedades físicas y químicas

## · 9.1 Información sobre propiedades físicas y químicas básicas

## · Datos generales

## · Aspecto:

Forma:

Líquido

Color:

Incoloro

## · Olor:

Característico

## · Umbral olfativo:

No determinado.

## · valor pH:

No determinado.

## · Cambio de estado

Punto de fusión/punto de congelación:

-159,9 °C

Punto inicial de ebullición e intervalo de ebullición: 27,9 °C

( se continua en página 5 )



# Ficha de datos de seguridad

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( se continua en página 4 )

· <b>Punto de inflamación:</b>	-51 °C
· <b>Inflamabilidad (sólido, gas):</b>	No aplicable.
· <b>Temperatura de ignición:</b>	420 °C
· <b>Temperatura de descomposición:</b>	No determinado.
· <b>Temperatura de auto-inflamación:</b>	No determinado.
· <b>Propiedades explosivas:</b>	El producto no es explosivo; sin embargo, pueden formarse mezclas explosivas de vapor / aire.
· <b>Límites de explosión:</b>	
<b>Inferior:</b>	1,4 Vol %
<b>Superior:</b>	7,6 Vol %
· <b>Presión de vapor a 20 °C:</b>	793 hPa
· <b>Densidad a 20 °C:</b>	0,62 g/cm <sup>3</sup>
· <b>Densidad relativa</b>	No determinado.
· <b>Densidad de vapor</b>	No determinado.
· <b>Tasa de evaporación:</b>	No determinado.
· <b>Solubilidad en / miscibilidad con agua:</b>	Poco o no mezclable.
· <b>Coefficiente de reparto: n-octanol/agua:</b>	No determinado.
· <b>Viscosidad:</b>	
<b>Dinámica a 20 °C:</b>	2,14 mPas
<b>Cinemática:</b>	No determinado.
· <b>9.2 Otros datos</b>	No existen más datos relevantes disponibles.

### SECCIÓN 10: Estabilidad y reactividad

- **10.1 Reactividad** No existen más datos relevantes disponibles.
- **10.2 Estabilidad química**
- **Descomposición térmica / condiciones que deben evitarse:** No se descompone al emplearse adecuadamente.
- **10.3 Posibilidad de reacciones peligrosas** No se conocen reacciones peligrosas.
- **10.4 Condiciones que deben evitarse** No existen más datos relevantes disponibles.
- **10.5 Materiales incompatibles:** No existen más datos relevantes disponibles.
- **10.6 Productos de descomposición peligrosos:** No se conocen productos de descomposición peligrosos.

### SECCIÓN 11: Información toxicológica

- **11.1 Información sobre los efectos toxicológicos**
- **Toxicidad aguda** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Efecto estimulante primario:**
- **Corrosión o irritación cutáneas** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Lesiones o irritación ocular graves**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Sensibilización respiratoria o cutánea**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.

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- **Indicaciones toxicológicas adicionales:**
- **Efectos CMR (carcinogenicidad, mutagenicidad y toxicidad para la reproducción)**
- **Mutagenicidad en células germinales**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Carcinogenicidad** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad para la reproducción** A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Toxicidad específica en determinados órganos (STOT) – exposición única**  
Puede provocar somnolencia o vértigo.
- **Toxicidad específica en determinados órganos (STOT) – exposición repetida**  
A la vista de los datos disponibles, no se cumplen los criterios de clasificación.
- **Peligro de aspiración**  
Puede ser mortal en caso de ingestión y penetración en las vías respiratorias.

### SECCIÓN 12: Información ecológica

- **12.1 Toxicidad**
- **Toxicidad acuática:** No existen más datos relevantes disponibles.
- **12.2 Persistencia y degradabilidad** No existen más datos relevantes disponibles.
- **12.3 Potencial de bioacumulación** No existen más datos relevantes disponibles.
- **12.4 Movilidad en el suelo** No existen más datos relevantes disponibles.
- **Efectos ecotóxicos:**
- **Observación:** Tóxico para peces.
- **Indicaciones medioambientales adicionales:**
- **Indicaciones generales:**  
Nivel de riesgo para el agua 2 (clasificación de listas): peligroso para el agua  
No dejar que se infiltre en aguas subterráneas, aguas superficiales o en alcantarillados.  
Una cantidad mínima vertida en el subsuelo ya representa un peligro para el agua potable.  
Vertido en aguas superficiales, también es tóxico para los peces y el plancton.  
tóxico para organismos acuáticos
- **12.5 Resultados de la valoración PBT y mPmB**
- **PBT:** No aplicable.
- **mPmB:** No aplicable.
- **12.6 Otros efectos adversos** No existen más datos relevantes disponibles.

### SECCIÓN 13: Consideraciones relativas a la eliminación

- **13.1 Métodos para el tratamiento de residuos**
- **Recomendación:** No debe desecharse con la basura doméstica. No debe llegar al alcantarillado.
- **Embalajes sin limpiar:**
- **Recomendación:** Eliminar conforme a las disposiciones oficiales.

### SECCIÓN 14: Información relativa al transporte

- **14.1 Número ONU**
- **ADR, IMDG, IATA** UN1265
- **14.2 Designación oficial de transporte de las Naciones Unidas**
- **ADR** 1265 PENTANOS, PELIGROSO PARA EL MEDIO AMBIENTE
- **IMDG, IATA** PENTANES

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## · 14.3 Clase(s) de peligro para el transporte

## · ADR



· Clase 3 Líquidos inflamables  
· Etiqueta 3

## · IMDG, IATA



· Class 3 Líquidos inflamables  
· Label 3

## · 14.4 Grupo de embalaje

· ADR, IMDG, IATA I

## · 14.5 Peligros para el medio ambiente:

Sustancia líquida potencialmente peligrosa para el medio ambiente

· Marcado especial (ADR): Símbolo (pez y árbol)

## · 14.6 Precauciones particulares para los usuarios

Atención: Líquidos inflamables

· Número de identificación de peligro (Número Kemler):

33

· Número EMS:

3-07

· Stowage Category

E

## · 14.7 Transporte a granel con arreglo al anexo II del Convenio MARPOL y el Código IBC

No aplicable.

## · Transporte/datos adicionales:

## · ADR

· Cantidades limitadas (LQ)

0

· Cantidades exceptuadas (EQ)

Código: E3

Cantidad neta máxima por envase interior: 30 ml

Cantidad neta máxima por embalaje exterior: 300 ml

· Categoría de transporte

1

· Código de restricción del túnel

D/E

## · IMDG

· Limited quantities (LQ)

0

· Excepted quantities (EQ)

Code: E3

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 300 ml

· "Reglamentación Modelo" de la UNECE:

UN 1265 PENTANOS, 3, I, PELIGROSO PARA EL MEDIO AMBIENTE

ES

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### SECCIÓN 15: Información reglamentaria

- **15.1 Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla**
- **Directiva 2012/18/UE**
- **Sustancias peligrosas nominadas - ANEXO I** No contiene la sustancia.
- **Categoría Seveso**  
P5a LÍQUIDOS INFLAMABLES  
E2 Peligroso para el medio ambiente acuático
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel inferior 10 t**
- **Cantidad umbral (toneladas) a efectos de aplicación de los requisitos de nivel superior 50 t**
- **REGLAMENTO (CE) n° 1907/2006 ANEXO XVII** Restricciones: 3, 40
- **Directiva 2011/65/UE sobre restricciones a la utilización de determinadas sustancias peligrosas en aparatos eléctricos y electrónicos - Anexo II**  
No contiene la sustancia.
- **REGLAMENTO (UE) 2019/1148**
- **Anexo I - PRECURSORES DE EXPLOSIVOS RESTRINGIDOS (Valor límite superior a efectos de la concesión de licencias con arreglo al artículo 5, apartado 3)**  
No contiene la sustancia.
- **Anexo II - PRECURSORES DE EXPLOSIVOS NOTIFICABLES** No contiene la sustancia.
- **Reglamento (CE) no 273/2004 sobre precursores de drogas** No contiene la sustancia.
- **Reglamento (CE) N o 111/2005 por el que establecen normas para la vigilancia del comercio de precursores de drogas entre la Comunidad y terceros países**  
No contiene la sustancia.
- **15.2 Evaluación de la seguridad química:** Una evaluación de la seguridad química no se ha llevado a cabo.

### SECCIÓN 16: Otra información

Los datos se fundan en el estado actual de nuestros conocimientos, pero no constituyen garantía alguna de cualidades del producto y no generan ninguna relación jurídica contractual.

- **Abreviaturas y acrónimos:**

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)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 1: Líquidos inflamables – Categoría 1

STOT SE 3: Toxicidad específica en determinados órganos ( exposición única) – Categoría 3

Asp. Tox. 1: Peligro por aspiración – Categoría 1

Aquatic Chronic 2: Peligroso para el medio ambiente acuático - peligro acuático a largo plazo – Categoría 2