

# SAFETY DATA SHEET

Version 6.11  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : 2-Methylbutane  
Product Number : M32631  
Brand : SIGALD  
Index-No. : 601-006-00-1  
CAS-No. : 78-78-4

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

### 1.3 Details of the supplier of the safety data sheet

Company : MilliporeSigma Canada Ltd.  
2149 WINSTON PARK DRIVE  
OAKVILLE ON L6H 6J8  
CANADA  
Telephone : +1 905 829-9500  
Fax : +1 905 829-9292

### 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 CHEMTREC  
(International)  
24 Hours/day; 7 Days/week

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## SECTION 2. HAZARDS IDENTIFICATION

### GHS classification in accordance with the Hazardous Products Regulations

Flammable liquids : Category 1  
Specific target organ toxicity - single exposure : Category 3 (Central nervous system)  
Aspiration hazard : Category 1  
Long-term (chronic) aquatic hazard : Category 2

## GHS label elements

Hazard pictograms :



Signal Word : Danger

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

Precautionary statements :

### Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground and bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharges.  
P261 Avoid breathing mist or vapours.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

### Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
P331 Do NOT induce vomiting.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  
P391 Collect spillage.

### Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards

Repeated exposure may cause skin dryness or cracking.

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

### Components

| Chemical name | CAS-No. | Concentration (% w/w) |
|---------------|---------|-----------------------|
| isopentane    | 78-78-4 | >= 80 - <= 100 *      |

\* Actual concentration or concentration range is withheld as a trade secret

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## SECTION 4. FIRST AID MEASURES

- General advice : Show this safety data sheet to the doctor in attendance.
- If inhaled : After inhalation: fresh air. Call in physician.
- In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- In case of eye contact : After eye contact: rinse out with plenty of water. Remove contact lenses.
- If swallowed : After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.
- Most important symptoms and effects, both acute and delayed : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
- Protection of first-aiders : For personal protection see section 8.
- Notes to physician : No data available

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## SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Foam  
Dry powder
- Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

|  |   |
|--|---|
| Specific hazards during fire fighting          | : Flash back possible over considerable distance.<br>Container explosion may occur under fire conditions.<br>Vapours may form explosive mixture with air.<br><br>Combustible.<br><br>Pay attention to flashback.<br><br>Development of hazardous combustion gases or vapours possible in the event of fire.<br><br>Forms explosive mixtures with air at ambient temperatures. |
| Hazardous combustion products                  | : Carbon oxides   |
| Specific extinguishing methods                 | : No data available   |
| Further information                            | : Remove container from danger zone and cool with water.<br>Prevent fire extinguishing water from contaminating surface water or the ground water system.   |
| Special protective equipment for fire-fighters | : In the event of fire, wear self-contained breathing apparatus.  |

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

|   |  |
|---|--|
| Personal precautions, protective equipment and emergency procedures | : Advice for non-emergency personnel:<br>Do not breathe vapours, aerosols.<br>Avoid substance contact.<br>Ensure adequate ventilation.<br>Keep away from heat and sources of ignition.<br>Evacuate the danger area, observe emergency procedures, consult an expert.<br>Advice for emergency responders:<br>For personal protection see section 8. |
| Environmental precautions   | : Do not let product enter drains.<br>Risk of explosion.   |

Methods and materials for containment and cleaning up : Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Advice on safe handling : Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Further information on storage conditions : Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage class : 3, Flammable liquids

Recommended storage temperature : 2 - 8 °C

Further information on storage stability : Refrigerate before opening. Handle and open container with care.

Packaging material : Suitable material: Mild Steel Drum

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis     |
|------------|---------|-------------------------------|--|-----------|
| isopentane | 78-78-4 | TWA                           | 600 ppm<br>1,770 mg/m <sup>3</sup>             | CA AB OEL |
|            |         | TWAEV                         | 1,000 ppm                                      | CA QC OEL |
|            |         | TWA                           | 1,000 ppm                                      | CA BC OEL |
|            |         | TWA                           | 1,000 ppm                                      | ACGIH     |

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type AX

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

#### Hand protection

Material : Nitrile rubber  
Break through time : 480 min  
Glove thickness : 0.4 mm  
Protective index : Full contact  
Manufacturer : Camatril® (KCL 730 / Aldrich Z677442, Size M)

Material : Chloroprene  
Break through time : 60 min  
Glove thickness : 0.65 mm  
Protective index : Splash contact  
Manufacturer : KCL 720 Camapren®

Remarks : This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).  
Safety glasses

Skin and body protection : Flame retardant antistatic protective clothing.

Hygiene measures : Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

|   |   |
|---|---|
| Appearance  | : liquid, clear                               |
| Color   | : colourless                                  |
| Odor  | : No data available                           |
| Odor Threshold                                      | : No data available                           |
| pH  | : No data available                           |
| Melting point                                       | : -159.77 °C<br>(ECHA)                        |
| Boiling point                                       | : 30 °C (1,013 hPa)                           |
| Flash point   | : -51 °C<br>(1,013 hPa)<br>Method: closed cup |
| Evaporation rate                                    | : No data available                           |
| Flammability (solid, gas)                           | : No data available                           |
| Flammability (liquids)                              | : No data available                           |
| Burning rate  | : No data available                           |
| Self-ignition                                       | : 420 °C<br>1,013 hPa                         |
| Upper explosion limit /<br>Upper flammability limit | : Upper explosion limit<br>7.6 %(V)           |
| Lower explosion limit /<br>Lower flammability limit | : Lower explosion limit<br>1.4 %(V)           |
| Vapor pressure                                      | : 769.92 hPa (20 °C)                          |
| Relative vapour density                             | : 2.49<br>(Air = 1.0)                         |
| Relative density                                    | : No data available                           |
| Density   | : 0.620 g/cm <sup>3</sup> (20 °C)             |
| Solubility(ies)                                     |   |
| Water solubility                                    | : 0.049 g/l slightly soluble (25 °C)<br>pH: 7 |

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Partition coefficient: n-octanol/water : log Pow: 4.00 (25 °C)  
 pH: 6.6  
 Method: OECD Test Guideline 117  
 GLP: yes  
 Potential bioaccumulation

Autoignition temperature : 420 °C (1,013 hPa)

Decomposition temperature : No data available

Viscosity  
 Viscosity, dynamic : 0.214 mPa.s ( 25 °C)

Viscosity, kinematic : No data available

Flow time : No data available

Explosive properties : Not classified as explosive.

Oxidizing properties : none

Molecular weight : 72.15 g/mol

Particle characteristics  
 Particle size : No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity : Vapours may form explosive mixture with air.

Chemical stability : The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions : Violent reactions possible with:  
 Oxidizing agents  
 rubber  
 various plastics

Conditions to avoid : Warming.

Incompatible materials : No data available

Hazardous decomposition products : In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Symptoms: Nausea, Vomiting

Inhalation: No data available

Dermal: No data available

No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Remarks: The value is given in analogy to the following substances: pentane

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation - 72 h

(OECD Test Guideline 405)

Remarks: The value is given in analogy to the following substances: pentane

#### Respiratory or skin sensitization

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

#### Carcinogenicity

No data available

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

May cause drowsiness or dizziness. - Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

Aspiration may cause pulmonary oedema and pneumonitis.

### 11.2 Additional Information

RTECS: EK4430000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption of large quantities:

Dizziness  
euphoria  
agitation  
Convulsions  
narcosis

Handle in accordance with good industrial hygiene and safety practice.

Liver - Irregularities - Based on Human Evidence

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### isopentane:

#### Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

### Persistence and degradability

#### Components:

##### isopentane:

Biodegradability : aerobic  
Inoculum: activated sludge, non-adapted  
Result: Readily biodegradable.  
Biodegradation: 71.43 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F  
Remarks: (ECHA)

### Bioaccumulative potential

#### Components:

##### isopentane:

Partition coefficient: n- : log Pow: 4.00 (25 °C)  
octanol/water pH: 6.6  
Method: OECD Test Guideline 117  
GLP: yes  
Remarks: Potential bioaccumulation

### Mobility in soil

No data available

## Other adverse effects

### Components:

#### isopentane:

Additional ecological information : Discharge into the environment must be avoided.

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 1265  
Proper shipping name : Pentanes  
Class : 3  
Packing group : I  
Labels : Class 3 - Flammable liquids  
Packing instruction (cargo aircraft) : 361  
Packing instruction (passenger aircraft) : 351

#### IMDG-Code

UN number : UN 1265  
Proper shipping name : PENTANES  
  
Class : 3  
Packing group : I  
Labels : 3  
EmS Code : F-E, S-D  
Marine pollutant : yes

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

### National Regulations

#### TDG

UN number : UN 1265  
Proper shipping name : PENTANES  
  
Class : 3  
Packing group : I

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Labels : 3  
ERG Code : 128  
Marine pollutant : no

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15. REGULATORY INFORMATION

**NPRI Components** : isopentane

### Canadian lists

No substances are subject to a Significant New Activity Notification.

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## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
CA AB OEL : Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)  
CA BC OEL : Canada. British Columbia OEL  
CA QC OEL : Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants  
ACGIH / TWA : 8-hour, time-weighted average  
CA AB OEL / TWA : 8-hour Occupational exposure limit  
CA BC OEL / TWA : 8-hour time weighted average  
CA QC OEL / TWA EV : Time-weighted average exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MERCOSUR - The Agreement for the Facilitation of the Transport of Dangerous Goods; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration;

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NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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