# SAFETY DATA SHEET

**Preparation Date:** No data available **Revision Date:** 03/30/2015 **Revision Number:** G1

## Product identifier

**Product code:** M1246
**Product Name:** 2-METHYLBUTANE, REAGENT

## Other means of identification

**Synonyms:** 1,1,2-Trimethylethane
2-Methylbutane
Butane, 2-methyl-
Dimethylethylmethane
Ethyldimethylmethane
Isoamylhydride
Isopentane
**CAS #:** 78-78-4
**RTECS #** EK4430000
**CI#:** Not available

## Recommended use of the chemical and restrictions on use

**Recommended use:** No information available.
**Uses advised against** No information available

**Supplier:**
Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000
**Order Online At:** https://www.spectrumchemical.com

**Emergency telephone number** Chemtrec 1-800-424-9300
**Contact Person:** Martin LaBenz (West Coast)
**Contact Person:** Ibad Tirmiz (East Coast)

## 2. HAZARDS IDENTIFICATION

### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|---|
| Specific target organ toxicity (single exposure) | Category 3 |
| Aspiration toxicity | Category 1 |
| Flammable liquids | Category 1 |

### Label elements

**Danger**

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

**Hazards not otherwise classified (HNOC)**
Not Applicable

**Other hazards**
Toxic to aquatic life with long lasting effects
Toxic to aquatic life
Repeated exposure may cause skin dryness or cracking

**Precautionary Statements - Prevention**
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/ .? /equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool

In case of fire: Use CO2, dry chemical, or foam to extinguish.
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 or doctor/physician if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting

**Precautionary Statements - Storage**
Store locked up
Store in a well-ventilated place. Keep container tightly closed

**Precautionary Statements - Disposal**
Dispose of contents/container to an approved waste disposal plant

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Components | CAS-No. | Weight % | Trade Secret |
|---|---|---|---|

| 3. COMPOSITION/INFORMATION ON INGREDIENTS | | | |
|---|---|---|---|
| 2-Methylbutane<br>78-78-4 | 78-78-4 | 100 | * |

## 4. FIRST AID MEASURES

**First aid measures**

**General Advice:** Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126).

**Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops.

**Eye Contact:** Flush eye with water for 15 minutes. Get medical attention.

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Fatal if swallowed. Repeated or prolonged exposure may cause dryness or cracking of the skin. Dizziness. Drowsiness. May cause eye irritation.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician:** Treat symptomatically

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

## 5. FIRE-FIGHTING MEASURES

### Extinguishing Media

**Suitable Extinguishing Media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable Extinguishing Media:** Do not use a solid (straight) water stream as it may scatter and spread fire.

### Specific hazards arising from the chemical

**Hazardous Combustion Products:** Carbon oxides

**Specific hazards:** Extremely flammable
May be ignited by heat, sparks or flames
Containers may explode when heated
Vapor may travel considerable distance to source of ignition and flash back
Vapors or dust may form explosive mixtures with air
Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks)
It may decompose upon heating to produce corrosive and/or toxic fumes

## Special Protective Actions for Firefighters

**Specific Methods:** Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:** Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

**Environmental precautions** Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Use clean non-sparking tools to collect absorbed material..

**Methods for cleaning up** Use clean non-sparking tools to collect absorbed material. wear personal protective equipment. Dike far ahead of spill; use dry sand to contain the flow of material.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Technical Measures/Precautions:**
Provide sufficient air exchange and/or exhaust in work rooms. All equipment used when handling the product must be grounded. Avoid dust formation. Keep away from incompatible materials. Remove all sources of ignition.

**Safe Handling Advice:**
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Keep away from heat and sources of ignition. Vapours may form explosive mixtures with air. Handle in accordance with good industrial hygiene and safety practice. Use only explosion-proof equipment.

### Conditions for safe storage, including any incompatibilities

**Technical Measures/Storage Conditions:**
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Store in a segrated and approved area. Store away from incompatible materials.

**Incompatible Materials:**
Oxidizing agents.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

**National occupational exposure limits**

**United States**

| Components | OSHA | NIOSH | ACGIH | AIHA WHEEL |
|---|---|---|---|---|
| 2-Methylbutane - 78-78-4 | None | None | = 600 ppm TWA | None |

**Canada**

| Components | Alberta | British Columbia | Ontario | Quebec |
|---|---|---|---|---|
| 2-Methylbutane - 78-78-4 | = 1770 mg/m$^3$ TWA<br>= 600 ppm TWA | = 600 ppm TWA | 600 ppm TWA Pentane, all isomers<br>1770 mg/m$^3$ TWA Pentane, all isomers | None |

**Australia and Mexico**

| Components | Australia | Mexico |
|---|---|---|
| 2-Methylbutane<br>78-78-4 | None | None |

**Appropriate engineering controls**

**Engineering measures to reduce exposure:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

**Eye protection:** Goggles.

**Skin and body protection:** Chemical resistant apron. Long sleeved clothing. Gloves.

**Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state:**
Liquid.

**Appearance:**
No information available

**Color:**
Colorless.

**Odor:**
Mild. Pleasant. Gasoline-like.

**Taste**
No information available

**Molecular/Formula weight:**
72.15 g/mol

**Formula:**
C5H12

**Flash point (°C):**
-51°C

**Flashpoint (°C/°F):**
-51°C/ -59.8°F

**Flash Point Tested according to:**
Closed cup

**Lower Explosion Limit (%):**
1.4%

**Upper Explosion Limit (%):**
7.6%

**Autoignition Temperature (°C/°F):**
No information available

**pH:**
No information available

**Melting point/range(°C/°F):**
-159.9°C/ -255.8°F

**Boiling point/range(°C/°F):**
27.85°C/ 82.1°F

**Decomposition temperature(°C/°F):**
No information available

**Bulk density:**
No information available

**Specific gravity:**
0.6197

**Vapor pressure @ 20°C (kPa):**
79.3

**Density (g/cm3):**
0.62

**Evaporation rate:**
No information available

**Vapor density:**
2.48

**VOC content (g/L):**
No information available

**Odor threshold (ppm):**
No information available

**Partition coefficient (n-octanol/water):**
2.72

**Viscosity:**
0.214 cP @ 20°C

**Miscibility:**
No information available

**Solubility:**
Insoluble in cold water
Insoluble in hot water
Miscible in Alcohols
Miscible in Ether
Soluble in hydrocarbons
Soluble in Oils

## 10. STABILITY AND REACTIVITY

**Reactivity**
Reactive with oxidizing agents

**Chemical stability**

**Stability:** Stable under recommended storage conditions

**Possibility of Hazardous Reactions:** In use, may form flammable/explosive vapor-air mixture

**Conditions to avoid:** Heat. Ignition sources. Incompatible materials.

**Incompatible Materials:** Oxidizing agents.

**Hazardous decomposition products:** Carbon oxides.

**Other Information**

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Principal Routes of Exposure:**
None.

**Acute Toxicity**

**Component Information**

*2-Methylbutane - 78-78-4*

**LD50/oral/rat =** No information available
**LD50/oral/mouse =** No information available
**LD50/dermal/rat =** No information available
**LD50/dermal/rabbit =** No information available
**LC50/inhalation/rat =** 280000 mg/m$^3$ 4H
**LC50/inhalation/mouse =** 150000 mg/m$^3$ 2H
**Other LD50 or LC50information =** No information available

**Product Information**

**LD50/oral/rat =**
**VALUE- Acute Tox Oral =** No information available

**LD50/oral/mouse =**
**Value - Acute Tox Oral =** No information available

**LD50/dermal/rabbit**
**VALUE-Acute Tox Dermal =** No information available

**LD50/dermal/rat**
**VALUE -Acute Tox Dermal =** No information available

**LC50/inhalation/rat**
**VALUE-Vapor =** 280000mg/m$^3$ (4-hr)
**VALUE-Gas =** No information available
**VALUE-Dust/Mist =** No information available

**LC50/Inhalation/mouse**
**VALUE-Vapor =** 150000 mg/m$^3$ (2-hr)
**VALUE - Gas =** No information available
**VALUE - Dust/Mist =** No information available

**Symptoms**

| | |
|---|---|
| **Skin Contact:** | Causes skin irritation. Skin contact may result in redness, pain, inflammation, itching, scaling. |
| **Eye Contact:** | Causes eye irritation. |
| **Inhalation** | Inhalation of mist or vapors may cause respiratory tract irritation. It may also cause pulmonary edema, chemical pneumonitis. It can aslo affect behavior/central nervous system and result in central nervous system depression. Symptoms may include excitement followed by headache, dizziness, drowsiness/sleepiness, weakness, loss of coordination, nausea, collapse, unconsciousness, coma and possible death due to respiratory failure. |

**Ingestion** Toxic if swallowed. May affect behavior/central nervous system (dizziness, drowsiness). Symptoms may include excitement followed by headache, weakness, loss of coordination, nausea, collapse, unconsciousness, coma and possible death due to respiratory failure. .

**Aspiration hazard** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity** Prolonged or repeated skin contact may cause dermatitis and defatting, dryness, and cracking of the skin. Prolonged or repeated ingestion may cause weight loss.

**Sensitization:** No information available

**Mutagenic Effects:** No information available

**Carcinogenic effects:** Not considered carcinogenic

| Components | ACGIH - Carcinogens | IARC | NTP | OSHA HCS - Carcinogens | Australia - Prohibited Carcinogenic Substances | Australia - Notifiable Carcinogenic Substances |
|---|---|---|---|---|---|---|
| 2-Methylbutane | Not listed | Not listed | Not listed | Not listed | Not listed | Not listed |

**Reproductive toxicity** No data is available

**Reproductive Effects:** No information available
**Developmental Effects:** No information available
**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** No information available
**STOT - repeated exposure** No information available
**Target Organs:** No information available

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Ecotoxicity effects:** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

*2-Methylbutane - 78-78-4*
**Water Flea Data:** 2.3 mg/L EC50 Daphnia magna 48 h

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available

**Mobility:** No information available

## 13. DISPOSAL CONSIDERATIONS

### Disposal Methods

**Waste from residues / unused products:**
Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**
Empty containers should be taken for local recycling, recovery or waste disposal

| Components | RCRA - F Series Wastes | RCRA - K Series Wastes | RCRA - P Series Wastes | RCRA - U Series Wastes |
|---|---|---|---|---|
| 2-Methylbutane | None | None | None | None |

## 14. TRANSPORT INFORMATION

**DOT**

**UN-No:** UN1265
**Proper Shipping Name:** Pentanes
**Hazard Class:** 3
**Subsidiary Risk:**
**Packing Group:** I
**ERG No:** 128
**Marine Pollutant** No data available
**DOT RQ (lbs):** No information available
**Symbol(s):**

**TDG (Canada)**

**UN-No:** UN1265
**Proper Shipping Name:** Pentanes
**Hazard Class:** 3
**Subsidiary Risk:** No information available
**Packing Group:** I
**Description:** No information available

**ADR**

**UN-No:** UN1265
**Proper Shipping Name:** Pentanes
**Hazard Class:** 3
**Packing Group:** I
**Subsidiary Risk:** No information available
**Classification Code:** No information available
**Description:** No information available
**CEFIC Tremcard No:** No information available

**IMO / IMDG**

**UN-No:** UN1265
**Proper Shipping Name:** Pentanes
**Hazard Class:** 3
**Subsidiary Risk:** No information available
**Packing Group:** I
**Description:** No information available
**IMDG Page:** No information available
**Marine Pollutant** No information available
**EMS:** F-E

## 14. TRANSPORT INFORMATION

**MFAG:** No information available
**Maximum Quantity:** No information available

**RID**

**UN-No:** UN1265
**Proper Shipping Name:** Pentanes
**Hazard Class:** 3
**Subsidiary Risk:** No information available
**Packing Group:** I
**Classification Code:** No information available
**Description:** No information available

**ICAO**

**UN-No:** UN1265
**Proper Shipping Name:** Pentanes
**Hazard Class:** 3
**Subsidiary Risk:** No information available
**Packing Group:** I
**Description:** No information available

**IATA**

**UN-No:** UN1265
**Proper Shipping Name:** Pentanes
**Hazard Class:** 3
**Subsidiary Risk:** No information available
**Packing Group:** I
**ERG Code:** 3H
**Description:** No information available

## 15. REGULATORY INFORMATION

### International Inventories

| Components | U.S. TSCA | KOREA KECL | Philippines (PICCS) | Japan ENCS | CHINA | Australia (AICS) | EINECS-No. |
|---|---|---|---|---|---|---|---|
| *2-Methylbutane* | Present | Present KE-23537 | Present | Present (2)-5 | Present | Present | Present 201-142-8 |

### U.S. Regulations

*2-Methylbutane*

**Massachusetts RTK:** Present
**New Jersey RTK Hazardous Substance List:** 1064
**New Jersey (EHS) List:** 1064 500 lb TPQ
**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present
**New Jersey TCPA - EHS:** =10000lbTQ
**Pennsylvania RTK:** Present

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**Chemicals Known to the State of California to Cause Cancer:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

| Components | Carcinogen | Developmental Toxicity | Male Reproductive Toxicity | Female Reproductive Toxicity: |
|---|---|---|---|---|
| 2-Methylbutane | Not Listed | Not Listed | Not Listed | Not Listed |

**CERCLA/SARA**

| Components | CERCLA - Hazardous Substances and their Reportable Quantities | Section 302 Extremely Hazardous Substances and TPQs | Section 302 Extremely Hazardous Substances and RQs | Section 313 - Chemical Category | Section 313 - Reporting *de minimis* |
|---|---|---|---|---|---|
| *2-Methylbutane* | None | None | None | None | None |

**U.S. TSCA**

| Components | TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS) | TSCA 8(d) -Health and Safety Reporting |
|---|---|---|
| *2-Methylbutane* | Not Applicable | Not Applicable |

## Canada

**WHMIS hazard class:**
Non-controlled

**2-Methylbutane**
B2

**Canada Controlled Products Regulation:**
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

**Inventory**

| Components | Canada (DSL) | Canada (NDSL) |
|---|---|---|
| 2-Methylbutane | Present | Not Listed |

| Components | CEPA Schedule I - Toxic Substances | CEPA - 2010 Greenhouse Gases Subject to Manditory Reporting |
|---|---|---|
| 2-Methylbutane | Not listed | Not listed |

**EU Classification**

**R-phrase(s)**
R12 - Extremely flammable.
R65 - Also harmful: may cause lung damage if swallowed
R66 - Repeated exposure may cause skin dryness or cracking.
R67 - Vapors may cause drowsiness and diziness.
R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**S -phrase(s)**
S 2 - Keep out of the reach of children.
S 9 - Keep container in a well-ventilated place.
S16 - Keep away from sources of ignition - No smoking.
S29 - Do not empty into drains.
S33 - Take precautionary measures against static discharges.
S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.
S62 - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

| Components | Classification | Concentration Limits: | Safety Phrases |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 2-Methylbutane | F+; R12<br>N; R51-53<br>Xn; R65<br>R66<br>R67 | No information | S2 S9 S16 S29 S33 S61 S62 |

**The product is classified in accordance with Annex VI to Directive 67/548/EEC**

**Indication of danger:**
F+ - Extremely flammable.
N - Dangerous for the environment.
Xn - Harmful.


## 16. OTHER INFORMATION

**Revision Date:** 03/30/2015
**Prepared by:** Sonia Owen

**Disclaimer:** All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**