Safety Data Sheet
2-Methylbutane

Section 1 - Chemical Product and Company Identification

SDS Name: 2-Methylbutane
Catalog Numbers: SO-1312
Company Identification: Transene Company, Inc., DBA ROWLEY BIOCHEMICAL, Inc.
10 ELECTRONICS AVENUE
DANVERS, MA 01923
For information, call: 978-739-4883
Emergency Number: 800-424-9300
For CHEMTREC assistance, call: 800-424-9300

Section 2 - Hazards Identification

GHS Classifications

H224-Flammable liquids: 1
H304-Aspiration hazard: 1
H336-Specific target organ toxicity, single exposure; Narcotic Effects: 3
H401-Hazardous to the aquatic environment, acute hazard: 2

Consists of ingredients of unknown acute dermal toxicity.

Pictograms or Hazard Symbols and Hazard Statement(s):

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
H401-Toxic to aquatic life

Precautionary Statements:

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 dust/fume/gas/mist/vapours/spray.
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.
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/shower.
P304+P340-If inhaled: Remove person to fresh air and keep comfortable for breathing.
P312-Call a Poison Center/doctor if you feel unwell.
P331-Do NOT induce vomiting.
P370+P378-In case of fire: Use dry chemical, carbon dioxide, dry sand, water spray, or alcohol-resistant foam to extinguish.
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.
P501-Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent
78-78-4	2-Methylbutane	$\geq$98 v/v

Section 4 - First Aid Measures

Eye Exposure: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Seek immediate medical attention.

Dermal Exposure: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Seek immediate medical attention.

Oral Exposure: If swallowed, seek immediate medical attention. Do not induce vomiting unless directed by a physician.

Inhalation Exposure: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Immediate medical attention is required. Risk of serious damage to the lungs.

Section 5 - Fire Fighting Measures

General Information: Extremely flammable liquid and vapor. Containers can build up pressure if exposed to heat and/or fire. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flash back possible over considerable distance.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, dry sand, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

Hazardous Combustion Products: Carbon oxides, potentially hazardous fumes and gases.

Flash Point: -51°C (-59.8°F)
Autoignition Temperature: 420°C (788°F)
Explosion Limits, Lower: 1.3 vol %
Upper: 7.6 vol %
NFPA Rating: (estimated) Health: 3; Flammability: 4; Instability: 0

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s):
Wear personal protective equipment. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Ensure adequate ventilation. Keep away from heat. Eliminate all sources of ignition. Take precautionary measures against static discharges.

Methods for Cleaning up: Absorb with inert material such as sand, earth, or vermiculite. Do NOT absorb with combustible material such as saw dust or cellulosic material. Carefully sweep up and containerize for proper disposal. Use only non-sparking tools. Use explosion-proof equipment and take precautionary measures against static discharge. Do not release to the environment. Do not release to drains.

Section 7 - Handling and Storage

Use care when handling. Wear personal protective equipment. Wash thoroughly after handling. Use with adequate ventilation. Use under a chemical fume hood. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Keep in a tightly closed and non-metal container. Store in a cool, dry, and well-ventilated area. Keep away from incompatible materials. Protect from heat. Protect from direct sunlight. Use only non-sparking tools. Use proper grounding procedures to avoid static electricity. Take

precautionary measures against static discharges. Vapors heavier than air may travel considerable distance and ignite or explode.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Exposure Limits:

Chemical Name	ACGIH - TLV	NIOSH - IDLH	OSHA - Final PELs
2-Methylbutane CAS#78-78-4	1000 ppm TWA	Not listed	Not listed

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: Clear, colorless

Odor: Strong characteristic odor

Vapor Pressure: 573 hPa at 20°C (68°F)

Odor Threshold: Not available

Vapor Density: 2.48 (Air=1.0)

pH: Not available

Relative Density: Not available

Melting point/freezing point: -158.5°C (-253.3°F)

Solubility: Slightly soluble

Boiling Point: 30°C (86°F)

Flash Point: -51°C (-59.8°F)

Evaporation Rate: Not available

Flammability (solid, gas): Not applicable

Partition coefficient: n-octanol/water: log Pow: 4.00 at 25°C (77°F)

Autoignition Temperature: 420°C (788°F)

Decomposition Temperature: Not available

Viscosity: Not available

Specific Gravity/Density: 0.62 g/cm3 at 20°C (68°F)

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, ignition sources, hot surfaces, and excess heat.
Incompatibilities with Other Materials: Oxidizing agents, rubber, and various plastics.
Hazardous Decomposition Products: Carbon oxides, potentially hazardous fumes and gases.

Section 11 - Toxicological Information

CAS#78-78-4 2-Methylbutane: RTECS#: EK4430000
LD50 Oral: >2,000 mg/kg (rat)
LD50 Dermal: Not available
LC50 Inhalation: 62.19 mg/L 4h vapor (rat)

Carcinogenicity: 2-Methylbutane CAS#78-78-4 is not listed by IARC, NTP, ACGIH, OSHA or California Prop. 65.

Information on the likely routes of exposure: Routes of entry anticipated: oral, dermal, inhalation, and eye.

Epidemiology: Not available.
Teratogenicity: Not available.
Reproductive Effects: Not available.
Developmental Effects: Not available.
Neurotoxicity: Not available.
Mutagenicity: Ames test (negative). Micronucleus test (negative).
Specific Target Organ Toxicity, Single Exposure: Central Nervous System.
Specific Target Organ Toxicity, Repeated Exposure: Not available.

Symptoms associated with exposure: Aspiration Hazard. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea, and vomiting. May cause liver irregularities.

The toxicological properties of this material have not been thoroughly investigated.

Section 12 - Ecological Information

Ecotoxicity: Do not release to the environment. Do not release to drains. Toxic to aquatic life. May cause long-term adverse effects in the aquatic environment.

CAS#78-78-4 2-Methylbutane:
LC50, freshwater fish: 3.1 mg/L 96h (oncorhynchus mykiss)(rainbow trout)
EC50, water flea: 2.3 mg/L 48h (daphnia magna)

Persistence and degradability: Readily biodegradable. Persistence is unlikely based on available information.
Bio-accumulative potential: Pimephales promelas (fathead minnow)(isopentane) Bioconcentration factor: 171. Does not significantly accumulate in organisms.
Mobility in soil: Will likely be mobile in the environment due to its volatility.

Section 13 - Disposal Considerations

DISPOSAL: Dispose of in accordance with all federal, state, and local regulations.

Section 14 – Transport Information

DOT
Proper shipping name: Pentanes
UN1265
PG I
Hazard class 3 (flammable)

Section 15 - Regulatory Information

Canada Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

Section 16 - Additional Information

SDS Creation Date: 12-7-21
Revision #1: 12-4-23

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