

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	<b>Flammable material; avoid heat and sources of ignition.</b> <b>Irritating to skin, eyes, and the respiratory system.</b> <b>Harmful compound, minimize exposure.</b>	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>2-Methylbutane</b>		
Catalog Number	M0167	Supplier	TGI America 9211 N. Harbortate St. Portland OR 1-800-423-8616
Synonym	Isopentane		
Chemical Formula	(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>2</sub> CH <sub>3</sub>		
CAS Number	78-78-4	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
2-Methylbutane	78-78-4	Min. 98.0 (GC)	Not available.	Not available.

## Section III. Hazards Identification

Acute Health Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

## Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	420°C (788°F)
Flash Points	-51°C (-59.8°F).	Flammable Limits	LOWER: 1.4% UPPER: 7.6%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.		

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Emergency phone number (800) 424-9300

**Section VI. Accidental Release Measures**

Spill Cleanup Instructions  
 Flammable liquid. Irritating material. Harmful material.  
 Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.

**Section VII. Handling and Storage**

Handling and Storage Information  
 FLAMMABLE. IRRITANT. HARMFUL. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray.  
 Always store away from incompatible compounds such as oxidizing agents.

**Section VIII. Exposure Controls/Personal Protection**

Engineering Controls  
 Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

Personal Protection  
 Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.



Exposure Limits  
 Not available.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Insoluble in water. Soluble in hydrocarbons, oils. Miscible with alcohol, ether.
Specific Gravity	0.6201 (water=1)		
Molecular Weight	72.15	Partition Coefficient	Not available.
Boiling Point	27.8°C (82°F)	Vapor Pressure	595mm Hg (@ 21.1°C)
Melting Point	-159.9°C (-255.8°F)	Vapor Density	2.48 (Air = 1)
Refractive Index	1.3537 @ 20°C	Volatility	Not available.
Critical Temperature	187.8°C (370°F)	Odor	Pleasant, gasoline-like.
Viscosity	Not available.	Taste	Not available.

**Section X. Stability and Reactivity Data**

Stability  
 This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability  
 Avoid excessive heat and light.

Incompatibilities  
 Reactive with oxidizing agents.

**Section XI. Toxicological Information**

RTECS Number  
 EK4430000

Routes of Exposure  
 Eye Contact. Ingestion. inhalation.

Toxicity Data  
 Not available.

Chronic Toxic Effects  
**CARCINOGENIC EFFECTS** : Not available.  
**MUTAGENIC EFFECTS** : Not available.  
**TERATOGENIC EFFECTS** : Not available.  
**DEVELOPMENTAL TOXICITY** Not available.  
 Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects  
 Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.  
 Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

**Section XII. Ecological Information**

Ecotoxicity Not available.

Environmental Fate Isopentane is both a naturally occurring and an anthropogenic compound which has a wide array of commercial uses. Isopentane may be released to the environment as a fugitive emission during its production and use, as a volatile emission from gasoline, in motor vehicle exhaust or in incinerator stack emissions. If released to soil, estimated soil adsorption coefficients for isopentane indicate low to moderate mobility in soil. Isopentane is expected to rapidly volatilize from both dry and moist soil to the atmosphere. Limited data indicate that isopentane has the potential to biodegrade in soil. If released to water, isopentane is expected to rapidly volatilize from water to the atmosphere. The half-life for volatilization of isopentane from a model river is 2.5 hrs. Estimated bioconcentration factors ranging from 33-70 suggest that isopentane will not significantly bioconcentrate in fish and aquatic organisms. Isopentane is not expected to significantly adsorb to sediment and suspended organic matter. Limited data indicate that it has the potential to biodegrade in water. If released to the atmosphere, isopentane is expected to undergo gas-phase oxidation reactions with photochemically produced hydroxyl radicals; the half-life for this process is estimated at 4.2 days. Occupational exposure to isopentane may occur by inhalation and dermal contact during its production, formulation or transport. Workers in the petroleum field are likely to be exposed to isopentane. Exposure to the general population may occur by inhalation of isopentane due to its emission from gasoline, motor vehicle exhaust, and natural sources.

**Section XIII. Disposal Considerations**

Waste Disposal Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

**Section XIV. Transport Information**

DOT Classification CLASS 3: Flammable liquid.

PIN Number UN1265

Proper Shipping Name Pentanes

Packing Group (PG) I

DOT Pictograms

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA) This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.

WHMIS Classification (Canada) CLASS B-2: Flammable liquid.

EINECS Number (EEC) 201-142-8

EEC Risk Statements  
R10- Flammable.  
R18- In use, may form flammable/explosive vapor-air mixture.  
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
R36/37/38- Irritating to eyes, respiratory system and skin.

Japanese Regulatory Data Not available.

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 3/30/2001.**  
**Printed 2/28/2005.**

**Notice to Reader**

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.