

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Flammable material; avoid heat and sources of ignition. Harmful compound, minimize exposure. (May cause lung damage if swallowed). Refrigerate and vent pressure slowly before opening.	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>2,3-Dimethylbutane</b>		
Catalog Number	D0690	Supplier	TGI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616
Synonym	1,1,2,2-Tetramethylethane		
Chemical Formula	$[(CH_3)_2CH]_2$		
CAS Number	79-29-8	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
2,3-Dimethylbutane	79-29-8	Min. 99.0(GC)	Not available.	Not available.

## Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. May cause lung damage if swallowed. 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	DO NOT INDUCE VOMITING. 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.

## Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	405°C (761°F)
Flash Points	-29°C (-20.2°F).	Flammable Limits	LOWER: 1.2% UPPER: 7.7%
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. Consult with local fire authorities before attempting large scale fire-fighting operations.		

**Section VI. Accidental Release Measures**

Spill Cleanup Instructions  
 Flammable material. Harmful material. May develop pressure. Refrigerate. 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. HARMFUL. MAY DEVELOP PRESSURE. REFRIGERATE. 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. (Colorless.)	Solubility	Soluble in ethanol, ether. Very soluble in acetone.
Specific Gravity	0.66 (water=1)		
Molecular Weight	86.18	Partition Coefficient	Not available.
Boiling Point	58 to 59°C (136.4 to 138.2°F)	Vapor Pressure	31.3 kPa (@ 25°C)
Melting Point	-129°C (-200.2°F)	Vapor Density	3.0 (Air = 1)
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
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 strong oxidizing agents.

**Section XI. Toxicological Information**

RTECS Number  
 EJ9350000

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  
 Harmful if ingested or inhaled. May cause lung damage if swallowed. 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	2,3-Dimethylbutane's production and use as a high octane fuel and in organic synthesis may result in its release to the environment through various waste streams. 2,3-Dimethylbutane is released into the atmosphere from auto, biomass combustion, and gasoline vapor emissions. If released to soil, 2,3-dimethylbutane will have low mobility. Volatilization of 2,3-dimethylbutane may be important from moist and dry soil surfaces. Insufficient data are available to determine the rate or importance of biodegradation of 2,3-dimethylbutane in soil or water. If released to water, 2,3-dimethylbutane would adsorb to suspended solids and sediment. 2,3-Dimethylbutane would volatilize from water surfaces with estimated half-lives for a model river and model lake of 2.7 hours and 3.7 days, respectively. An estimated BCF value of 230 suggests that 2,3-dimethylbutane will bioconcentrate in aquatic organisms. If released to the atmosphere, 2,3-dimethylbutane will exist as a vapor. Vapor-phase 2,3-dimethylbutane is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated half-life of about 5.4 days. Vapor-phase 2,3-dimethylbutane is also degraded in the atmosphere by reaction with nitrate radicals with an estimated half-life of about 334 days. Exposure to 2,3-dimethylbutane will occur primarily through inhalation.
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### 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.
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### Section XIV. Transport Information

DOT Classification CLASS 3: Flammable liquid.

PIN Number UN2457

Proper Shipping Name 2,3-Dimethylbutane

Packing Group (PG) II

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 with a flash point lower than 37.8°C (100°F).

EINECS Number (EEC) 201-193-6

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.  
 R65- Harmful: may cause lung damage if swallowed.

Japanese Regulatory Data Not available.

### Section XVI. Other Information

Version 1.0  
 Validated on 5/27/2003.  
 Printed 2/3/2005.

#### Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, 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.