

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Hygroscopic -- keep container tightly sealed. Irritating to skin, eyes, and the respiratory system.	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>(R)-(-)-1,3-Butanediol</b>		
Catalog Number	B1159	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	(R)-(-)-1,3-Butylene Glycol		
Chemical Formula	CH <sub>3</sub> CH(OH)CH <sub>2</sub> CH <sub>2</sub> OH		
CAS Number	6290-03-5	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
(R)-(-)-1,3-Butanediol	6290-03-5	-----	Not available.	Rat LD <sub>50</sub> (oral) 18610mg/kg Mouse LD <sub>50</sub> (oral) 10276mg/kg Rabbit LD <sub>50</sub> (dermal) >20000mg/kg

## 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. 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> Reproductive effects: Rat TDLo (oral) 42360 mg.kg, female 6-15 days of pregnancy. Toxic Effects: Effects on Newborn - Growth statistics. 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	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	121.11°C (250°F).	Flammable Limits	LOWER: 1.9%
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	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. 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  
Irritating material. Hygroscopic material.  
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.

**Section VII. Handling and Storage**

Handling and Storage Information  
IRRITANT. HYGROSCOPIC. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/vapor/spray. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively.  
Always store away from incompatible compounds such as oxidizing agents, reducing 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	Practically insoluble in aliphatic hydrocarbons, benzene, toluene, carbon tetrachloride, ethanolamines, mineral and linseed oil. Soluble in water, acetone, methyl ethyl ketone, ethanol, dibutylphthalate, castor oil. Slightly soluble in ether.
Specific Gravity	1.0059 (water=1)		
Molecular Weight	90.12	Partition Coefficient	Not available.
Boiling Point	207.5°C (405.5°F)	Vapor Pressure	0 kPa (@ 20°C)
Melting Point	<50°C (122°F)	Vapor Density	3.1 (Air = 1)
Refractive Index	1.4401 @ 20°C	Volatility	Not available.
Critical Temperature	370°C (698°F)	Odor	Odorless.
Viscosity	Not available.	Taste	Sweet with bitter after taste.

**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, reducing agents, chloroformates, acid chlorides, and acid anhydrides.

**Section XI. Toxicological Information**

RTECS Number	EK0440000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD <sub>50</sub> (oral) 18610mg/kg Mouse LD <sub>50</sub> (oral) 10276mg/kg Rabbit LD <sub>50</sub> (dermal) >20000mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> Reproductive effects: Rat TDLo (oral) 42360 mg.kg, female 6-15 days of pregnancy. Toxic Effects: Effects on Newborn - Growth statistics. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
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Emergency phone number (800) 424-9300

**Section XII. Ecological Information**

Ecotoxicity	Not available.
Environmental Fate	1,3-Butanediol can be released to the environment in waste effluents generated at sites of its commercial production. Its use in de-icing mixtures for removing ice from airplanes will release 1,3-butanediol directly to the surrounding environment. If released to the atmosphere, it will degrade in the vapor-phase by reaction with photochemically produced hydroxyl radicals (estimated half-life of 1.2 days). If released to soil or water, 1,3-butanediol will probably biodegrade. Leaching in soil is possible since 1,3-butanediol is miscible in water. Occupational exposure to 1,3-butanediol occurs through dermal contact and inhalation of vapor.

**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	Not a DOT controlled material (United States).
PIN Number	Not applicable.
Proper Shipping Name	Not applicable.
Packing Group (PG)	Not applicable.
DOT Pictograms	

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

TSCA Chemical Inventory (EPA)	This product is <b>NOT</b> on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list: (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec. (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.
WHMIS Classification (Canada)	Not available.
EINECS Number (EEC)	228-532-0
EEC Risk Statements	R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	Not available.

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 6/8/2001.**  
**Printed 1/22/2005.**

**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.