

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
   	<p>Flammable material; avoid heat and sources of ignition. Toxic compound, do not ingest or inhale. Avoid all contact with this material. Irritating to skin, eyes, and the respiratory system. CARCINOGEN. MINIMIZE EXPOSURE.</p>	   

Section I. Chemical Product and Company Identification

Chemical Name	Isoprene (stabilized with TBC)		
Catalog Number	10160	Supplier	TCI America 9211 N. Harborsgate St. Portland OR 1-800-423-8616
Synonym	2-Methyl-1,3-butadiene (stabilized with TBC)		
Chemical Formula	CH ₂ :C(CH ₃)CH:CH ₂		
CAS Number	78-79-5	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Isoprene (stabilized with TBC)	78-79-5	-----	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LC ₅₀ (Inhalation) 180,000 mg/m ³ /4H Mouse LC ₅₀ (Inhalation) 139,000 mg/m ³ /4H

Section III. Hazards Identification

Acute Health Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. 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. Exposure can cause: CNS depression, narcotic effect, unconsciousness. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<p>CARCINOGENIC EFFECTS : Carcinogenic by RTECS criteria. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic Effects. Rat TCLo Inhalation 220 ppm/6 hours/2 years intermittent Tumorigenic - Carcinogenic by RTECS criteria Skin and Appendages - Tumors Mouse TCLo Inhalation 7000 ppm/6 hours/26 weeks intermittent TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Lung, Thorax, or Respiration - Tumors Liver - Tumors DEVELOPMENTAL TOXICITY Reproductive Effects. Rat TCLo Inhalation 7000 ppm, female 6-19 days of pregnancy. TOXIC Effects: Specific Developmental Abnormalities - Musculoskeletal system. Mouse TCLo Inhalation 280 ppm, female 6-17 days of pregnancy TOXIC Effects: Effects on Embryo or Fetus - Fetotoxicity Mouse TCLo Inhalation 7000 ppm, female 6-17 days of pregnancy. TOXIC Effects: Specific Developmental Abnormalities - Craniofacial Specific Developmental Abnormalities - Musculoskeletal system Specific Developmental Abnormalities - Urogenital system</p>

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	If the chemical gets spilled on a clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, creases, and groins. Cover the irritated skin with an emollient. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.

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Emergency phone number (800) 424-9300

(stabilized with TBC)

Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. Seek medical attention. Treat symptomatically and supportively.
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, administer artificial respiration. 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 and, if possible, show the chemical label. Treat symptomatically and supportively.

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	Not available.
Flash Points	-54°C (-65.2°F).	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Forms explosive mixtures in air. Reactive with strong oxidizers. Vapors may travel to source of ignition and flash back. Closed containers may explode from the heat of a fire. Highly flammable in presence of open flames and sparks, of shocks, of heat.		
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. No additional information is available regarding the risks of explosion.		
Fire Fighting Media and Instructions	Flammable liquid, insoluble in water. SMALL FIRE: Use DRY chemicals, CO ₂ , alcohol foam or water spray. LARGE FIRE: Use 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.		

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Flammable Material. Toxic Material. Irritating Material. Forms explosive mixtures in air. CARCINOGENIC Material. Keep away from heat and sources of ignition. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.
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Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE. TOXIC. IRRITANT. CARCINOGEN. FORMS EXPLOSIVE MIXTURES IN AIR. Reactive with strong oxidizers; may be ignited by heat, sparks, or flames. Vapors may travel to source of ignition and flash back. Tightly seal container and store in a cool place. Closed containers may explode from heat of a fire. Empty containers may pose a fire risk. Evaporate residue under a fume hood if possible. Ground all equipment containing material. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Avoid contact with skin and eyes. Always store away from incompatible compounds such as oxidizing agents, metals, alkalis (bases).
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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. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Colorless liquid.	Solubility	Insoluble in cold water, hot water.
Specific Gravity	0.68		
Molecular Weight	68.12	Partition Coefficient	Not available.
Boiling Point	35°C (95°F)	Vapor Pressure	400 mm of Hg (@ 15.4°C)
Melting Point	-120°C (-184°F)	Vapor Density	2.36 (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	Incompatible with ammonia, alcohols, chlorinated solvents, acid chlorides, halogens.
Incompatibilities	Highly reactive with oxidizing agents, metals, alkalis (bases), acid chlorides, ammonia, alkali metals, chlorinated solvents, alcohols, oxygen, nitric acid, sulfuric acid, ozone, chlorosulfonic acid, oleum.

Section XI. Toxicological Information

RTECS Number	NT4037000
Routes of Exposure	Eye contact. Inhalation. Ingestion. Skin contact.
Toxicity Data	Rat LC ₅₀ (Inhalation) 180,000 mg/m ³ /4H Mouse LC ₅₀ (Inhalation) 139,000 mg/m ³ /4H
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Carcinogenic by RTECS criteria. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic Effects. Rat TClO Inhalation 220 ppm/6 hours/2 years intermittent Tumorigenic - Carcinogenic by RTECS criteria Skin and Appendages - Tumors Mouse TClO Inhalation 7000 ppm/6 hours/26 weeks intermittent TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Lung, Thorax, or Respiration - Tumors Liver - Tumors DEVELOPMENTAL TOXICITY Reproductive Effects. Rat TClO Inhalation 7000 ppm, female 6-19 days of pregnancy. TOXIC Effects: Specific Developmental Abnormalities - Musculoskeletal system. Mouse TClO Inhalation 280 ppm, female 6-17 days of pregnancy TOXIC Effects: Effects on Embryo or Fetus - Fetotoxicity Mouse TClO Inhalation 7000 ppm, female 6-17 days of pregnancy. TOXIC Effects: Specific Developmental Abnormalities - Craniofacial Specific Developmental Abnormalities - Musculoskeletal system Specific Developmental Abnormalities - Urogenital system
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Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Isoprene is the basic structural unit of several natural products and primary sources of release to the environment are expected to be in emissions from vegetation and as a by-product in the production of ethylene by naphtha cracking. It may also be released through tobacco smoke, gasoline, turbine and automobile exhaust; via wood pulping, biomass combustion and rubber abrasion. If released to soil or water, volatilization is expected to be the primary environmental fate process. Volatilization half-lives from a model river and a model environmental pond have been estimated to be 2.4 and 34.2 hr, respectively. A Koc of 125 suggests high mobility in water and soil. Its high vapor pressure suggests that the gas may permeate through soil. Photolysis, hydrolysis, bioconcentration and soil/sediment adsorption of isoprene are not expected to be important environmental fate processes. If released to the atmosphere, isoprene is expected to exist entirely in the vapor phase in the ambient atmosphere where it will degrade by reaction with hydroxyl radicals (half-life of 3.8 hr), ozone molecules (half-life of 19.2 hr) or, if released at nighttime, nitrate radicals (organic lifetime of 22-216 min). The most probable route of human exposure to isoprene is by inhalation. (HSDB)

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or 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 this substance.
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Section XIV. Transport Information

DOT Classification	DOT CLASS 3: Flammable liquid.
PIN Number	UN1218
Proper Shipping Name	Isoprene, stabilized.
Packing Group (PG)	I

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Emergency phone number (800) 424-9300

DOT Pictograms



Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA) This product is **ON** the EPA Toxic Substance Control Act (TSCA) inventory.

WHMIS Classification (Canada) WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).

EINECS Number (EEC) 201-143-3

EEC Risk Statements R12- Extremely flammable.
R18- In use, may form flammable/explosive vapor-air mixture.
R36/38- Irritating to eyes and skin.

Japanese Regulatory Data Not Available

Section XVI. Other Information

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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.