








Material Safety Data Sheet

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

Section I. Chemical Product and Company Identification

Chemical Name	1-Propanol		
Catalog Number	P0491	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	n-Propyl Alcohol		
Chemical Formula	CH ₃ CH ₂ CH ₂ OH		
CAS Number	71-23-8	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
1-Propanol	71-23-8	Min. 99.0 (GC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD ₅₀ (oral) 1870mg/kg Rat LD ₅₀ (intraperitoneal) 2164mg/kg Rabbit LD ₅₀ (dermal) 5040mg/kg

Section III. Hazards Identification

Acute Health Effects	<p>Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury 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.</p> <p>Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p>CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic effects: Rat TDLo (Oral) 50g/kg/81 weeks, intermittent. Toxic effects: Tumorigenic - Carcinogenic by RTECS criteria. Liver - Tumors. Blood - Leukemia. Rat TDLo (subcutaneous) 6g/kg/95 weeks, intermittent. Toxic effects: Tumorigenic - Carcinogenic by RTECS criteria. Liver - Tumors. Blood - Leukemia. DEVELOPMENTAL TOXICITYReproductive effects: Rat TCLo (inhalation) 7000 ppm/7 hours, female 1-19 days of pregnancy. Toxic effects: Effects on Embryo or Fetus - Fetotoxicity. Rat TCLo (inhalation) 10000 ppm/7 hours, female 1-19 days of pregnancy. Toxic effects: Effects on Fertility - Post-implantation mortality. Effects on Embryo or Fetus - Fetal death. Specific Developmental Abnormalities - Musculoskeletal system. Rat TCLo (inhalation) 7000 ppm/7 hours, male 6 weeks prior to mating. Toxic effects: Effects on Fertility - Male fertility index. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.</p>

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	439°C (822.2°F)
Flash Points	15°C (59°F).	Flammable Limits	LOWER: 2.1% UPPER: 13.7%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
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. Irritating material. Carcinogenic 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.
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Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE. HARMFUL. IRRITANT. CARCINOGEN. Keep away from heat. Mechanical exhaust required. 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.
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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. 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	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Miscible with water, propylene glycol.
Specific Gravity	0.804(water=1)		
Molecular Weight	60.1	Partition Coefficient	Not available.
Boiling Point	97.2°C (207°F)	Vapor Pressure	2 kPa (@ 20°C)
Melting Point	-127°C (-196.6°F)	Vapor Density	2.1 (Air = 1)
Refractive Index	1.3862 @ 20°C	Volatility	Not available.
Critical Temperature	Not available.	Odor	Alcohol like. (Slight.)
Viscosity	Not available.	Taste	Characteristic ripe fruity flavor.

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	UH8225000
Routes of Exposure	Eye Contact. Ingestion. inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 1870mg/kg Rat LD ₅₀ (intraperitoneal) 2164mg/kg Rabbit LD ₅₀ (dermal) 5040mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Tumorigenic effects: Rat TDLo (Oral) 50g/kg/81 weeks, intermittent. Toxic effects: Tumorigenic - Carcinogenic by RTECS criteria. Liver - Tumors. Blood - Leukemia. Rat TDLo (subcutaneous) 6g/kg/95 weeks, intermittent. Toxic effects: Tumorigenic - Carcinogenic by RTECS criteria. Liver - Tumors. Blood - Leukemia. DEVELOPMENTAL TOXICITY Reproductive effects: Rat TCLo (inhalation) 7000 ppm/7 hours, female 1-19 days of pregnancy. Toxic effects: Effects on Embryo or Fetus - Fetotoxicity. Rat TCLo (inhalation) 10000 ppm/7 hours, female 1-19 days of pregnancy. Toxic effects: Effects on Fertility - Post-implantation mortality. Effects on Embryo or Fetus - Fetal death. Specific Developmental Abnormalities - Musculoskeletal system. Rat TCLo (inhalation) 7000 ppm/7 hours, male 6 weeks prior to mating. Toxic effects: Effects on Fertility - Male fertility index. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
Acute Toxic Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury 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. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.


Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Propanol will enter the environment as emissions from its manufacture and use as a solvent in industry and in many consumer products, and in emissions from fermentation and sewage treatment. It naturally occurs as a plant volatile, and is released during microbial degradation of animal wastes and in the fermentation and spoilage of vegetable products. When spilled on land it is apt to volatilize, leach into ground water, and biodegrade. Its fate in groundwater is unknown. When released into water it is apt to volatilize and biodegrade. It is not expected to adsorb to sediment or bioconcentrate in fish. In the atmosphere, it will photodegrade in days primarily by reaction with hydroxyl radicals. Rainout may be a significant process. Human exposure will be in occupational atmospheres, and through use of products containing propanol, and proximity to sites where it is released, including industries and natural sources. Exposure will also be from ingestion of contaminated drinking water and foods containing n-propanol.

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	UN1274
Proper Shipping Name	n-Propanol
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)	200-746-9
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. R46- May cause heritable genetic damage. R47- May cause birth defects.
Japanese Regulatory Data	ENCS No. 2-0207

Section XVI. Other Information

Version 1.0
Validated on 4/16/2001.
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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, 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.