

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	Flammable material; avoid heat and sources of ignition. Corrosive to eyes and skin on contact. Harmful compound, minimize exposure. Stench -- do not inhale, use under a fume hood. May develop pressure. May form explosive mixtures with air. Store under nitrogen. Refrigerate.	

Section I. Chemical Product and Company Identification

Chemical Name	Propionaldehyde		
Catalog Number	P0498	Supplier	TCI America 9211 N. Harborgeate St. Portland OR 1-800-423-8616
Synonym	n-Propanal		
Chemical Formula	CH ₃ CH ₂ CHO		
CAS Number	123-38-6	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
Propionaldehyde	123-38-6	Min. 95.0 (GC)	Not available.	Rat LD ₅₀ (oral) 1410mg/kg Rabbit LD ₅₀ (dermal) 2460mg/kg Mouse LC ₅₀ (inhalation) 21800mg/m ³ /2H

Section III. Hazards Identification

Acute Health Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

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	Wash with soap and water. Get medical attention if irritation develops.
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	207°C (404.6°F)
Flash Points	-27°C (-16.6°F) (C.C.)	Flammable Limits	LOWER: 3% UPPER: 16%
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 liquid. Corrosive liquid. Harmful material. Stench material. May develop pressure. May form explosive mixtures with air. Store under nitrogen. Refrigerate 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 get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. 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. CORROSIVE. HARMFUL. STENCH. MAY DEVELOP PRESSURE. MAY FORM EXPLOSIVE MIXTURES WITH AIR. STORE UNDER NITROGEN. REFRIGERATE. Keep container dry. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Wear suitable protective clothing. 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, acids, alkalis (bases).

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	Face shield. 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 5 vols water @ 20°C. Miscible with alcohol and ether.
Specific Gravity	0.81(water=1)		
Molecular Weight	58.08	Partition Coefficient	Not available.
Boiling Point	47 to 49°C (116.6 to 120.2°F)	Vapor Pressure	34.4 kPa (@ 20°C)
Melting Point	-81°C (-113.8°F)	Vapor Density	2 (Air = 1)
Refractive Index	1.36	Volatility	Not available.
Critical Temperature	Not available.	Odor	Pungent, unpleasant.
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	May form explosive mixtures with air. Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, strong reducing agents, strong acids, strong alkalis (bases), caustics, amines.

Section XI. Toxicological Information	
RTECS Number	UE0350000
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD ₅₀ (oral) 1410mg/kg Rabbit LD ₅₀ (dermal) 2460mg/kg Mouse LC ₅₀ (inhalation) 21800mg/m ³ /2H
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.
Acute Toxic Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information	
Ecotoxicity	Not available.
Environmental Fate	Propionaldehyde's production and use in the manufacture of propionic acid, plastics, rubber chemicals, and as a disinfectant and preservative may result in its release to the environment through various waste streams. Propionaldehyde is released to the atmosphere via the combustion of wood, gasoline, diesel fuel, and polyethylene. Municipal waste incinerators can release it to ambient air. If released to air, a vapor pressure of 317 mm Hg at 25 deg C indicates propionaldehyde will exist solely as a vapor in the ambient atmosphere. Vapor-phase propionaldehyde will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 19.6 hrs. Propionaldehyde absorbs light in the environmental UV spectrum and has the potential for direct photolysis. If released to soil, propionaldehyde is expected to have very high mobility based upon an estimated Koc of 50. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 7.3X10 ⁻⁵ atm-cu m/mole. Propionaldehyde may volatilize from dry soil surfaces based upon its vapor pressure. If released into water, propionaldehyde is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. In terrestrial and aquatic environments, propionaldehyde will biodegrade to propionic acid using an activated sludge inocula, which then undergoes mineralization. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 6.9 hrs and 5.8 days, respectively. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. Propionaldehyde is not expected to chemically hydrolyze in the environment due to the lack of hydrolyzable functional groups. Occupational exposure to propionaldehyde may occur through inhalation and dermal contact with this compound at workplaces where propionaldehyde is produced or used. Monitoring data indicate that the general population may be exposed to propionaldehyde via inhalation of ambient air, ingestion of drinking water, and dermal contact with this compound and other products containing propionaldehyde. (HSDB)

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	UN1275
Proper Shipping Name	Propionaldehyde
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. This product is subject to SARA Section 313 reporting requirements. On EPA IRIS Database. Deminimis: 1%
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC). CLASS E: Corrosive liquid. On DSL.
EINECS Number (EEC)	204-623-0
EEC Risk Statements	R11- Highly 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	ENCS No. 2-486

Section XVI. Other Information**Version 1.0****Validated on 9/29/2004.****Printed 3/17/2005.****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.

Printed 3/17/2005.