

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Flammable material; avoid heat and sources of ignition. Harmful compound, minimize exposure. Hygroscopic -- keep container tightly sealed. Irritating to skin, eyes, and the respiratory system. Store under nitrogen.	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Acetonitrile</b>		
Catalog Number	A0060	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Cyanomethane		
Chemical Formula	C <sub>2</sub> H <sub>3</sub> N		
CAS Number	75-05-8	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
Acetonitrile	75-05-8	Min. 99.5%(GC)	Not available.	Rat LD <sub>50</sub> (oral) 2460 mg/kg Rabbit LD <sub>50</sub> (dermal) 1250 uL/kg Rat LD <sub>50</sub> (inhalation) 7551 ppm/8H

## Section III. Hazards Identification

Acute Health 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.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : TUMORIGENIC EFFECTS Rat TCLo Inhalation; 400 ppm/ 6 hours/ 2 years intermittent <b>TOXIC EFFECTS</b> Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Liver - Tumors <b>DEVELOPMENTAL TOXICITY: REPRODUCTIVE EFFECTS</b> Rat TCLo Inhalation; 1800 ppm/ 6 hours; female 6-20 days of pregnancy <b>TOXIC EFFECTS</b> Effects on Fertility - Post-implantation mortality (e.g., dead and or resorbed implants per total number of implants) TDLo Oral; 2 mg/kg; female 10 days of pregnancy <b>TOXIC EFFECTS</b> Effects on Embryo or Fetus - Other effects to embryo Mouse TDLo Oral; 390 mg/kg; female 6-18 days of pregnancy <b>TOXIC EFFECTS</b> Maternal Effects - Other effects Effects on Embryo or Fetus - Fetal death Specific Developmental Abnormalities - Musculoskeletal system 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.

<b>Section V. Fire and Explosion Data</b>			
Flammability	Flammable.	Auto-Ignition	524 °C (975.2 °F)
Flash Points	10 °C (50 °F).	Flammable Limits	LOWER: 3% UPPER: 16%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ). WARNING: Very toxic cyanide gas may be produced in a fire. Do not inhale.		
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.		

<b>Section VI. Accidental Release Measures</b>	
Spill Cleanup Instructions	Flammable Material. Harmful Material. Hygroscopic Material. Irritating 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.

<b>Section VII. Handling and Storage</b>	
Handling and Storage Information	FLAMMABLE. HARMFUL. HYGROSCOPIC. IRRITANT. STORE UNDER NITROGEN. 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, reducing agents, acids, alkalis (bases).

<b>Section VIII. Exposure Controls/Personal Protection</b>	
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.

<b>Section IX. Physical and Chemical Properties</b>			
Physical state @ 20°C	Liquid. (Clear, Colorless.)	Solubility	Miscible in water, methanol, methyl acetate, ethyl acetate, acetone, ether, acetamide solutions, chloroform, carbon tetrachloride, ethylene chloride and many unsaturated hydrocarbons. Immiscible in many saturated hydrocarbons (petroleum fractions.) Dissolves some in organic salts, e.g., silver nitrate, lithium nitrate, magnesium bromide.
Specific Gravity	0.786 (water=1)	Partition Coefficient	Log P <sub>ow</sub> -0.34
Molecular Weight	41.05	Vapor Pressure	9.7 kPa (@ 20 °C)
Boiling Point	82 °C (179.6 °F)	Vapor Density	1.42 (Air = 1)
Melting Point	-45 °C (-49 °F)	Volatility	Not available.
Refractive Index	1.343 to 1.346	Odor	Ether like.
Critical Temperature	Not available.	Taste	Not available.
Viscosity	0.35 Pas (@ 20 °C)		

<b>Section X. Stability and Reactivity Data</b>	
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, acids, alkalis (bases), alkali metals. This compound attacks some forms of plastic, rubber, and coatings.

**Section XI. Toxicological Information**

RTECS Number	AL7700000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD <sub>50</sub> (oral) 2460 mg/kg Rabbit LD <sub>50</sub> (dermal) 1250 uL/kg Rat LD <sub>50</sub> (inhalation) 7551 ppm/8H
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : TUMORIGENIC EFFECTS Rat TCLo Inhalation; 400 ppm/ 6 hours/ 2 years intermittent <b>TOXIC EFFECTS</b> Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Liver - Tumors <b>DEVELOPMENTAL TOXICITY: REPRODUCTIVE EFFECTS</b> Rat TCLo Inhalation; 1800 ppm/ 6 hours; female 6-20 days of pregnancy <b>TOXIC EFFECTS</b> Effects on Fertility - Post-implantation mortality (e.g., dead and or resorbed implants per total number of implants) TDLo Oral; 2 mg/kg; female 10 days of pregnancy <b>TOXIC EFFECTS</b> Effects on Embryo or Fetus - Other effects to embryo Mouse TDLo Oral; 390 mg/kg; female 6-18 days of pregnancy <b>TOXIC EFFECTS</b> Maternal Effects - Other effects Effects on Embryo or Fetus - Fetal death Specific Developmental Abnormalities - Musculoskeletal system 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	Acetonitrile's production and wide use as a solvent, chemical intermediate, and catalyst may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 88.8 mm Hg at 25 deg C indicates acetonitrile will exist solely as a vapor in the ambient atmosphere. Vapor-phase acetonitrile 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 621 days. If released to soil, acetonitrile is expected to have very high mobility based upon an estimated Koc of 16. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 3.45X10 <sup>-5</sup> atm-cu m/mole. Acetonitrile may volatilize from dry soil surfaces based upon its vapor pressure. If released into water, acetonitrile is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Studies using mixed microbial cultures from activated sludge and sewage have shown that biodegradation of acetonitrile proceeds sluggishly without acclimatization. Mixed microbial cultures isolated by an enrichment culture technique degraded 58% acetonitrile in 5 days; river water also biodegraded acetonitrile with 40% theoretical oxygen demand after 12 days. 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 12 hours and 7 days, respectively. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. The chemical hydrolysis of acetonitrile in water is base catalyzed but the rate is too slow to be an important fate process. The chemical hydrolysis half-life at pH 7 is >150,000 years. Occupational exposure to acetonitrile may occur through inhalation and dermal contact with this compound at workplaces where acetonitrile is produced or used. Monitoring data indicate that the general population may be exposed to acetonitrile via ingestion of food and drinking water, and dermal contact with products containing acetonitrile.

**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	DOT Class 3: Flammable liquid.
PIN Number	UN1648
Proper Shipping Name	Acetonitrile
Packing Group (PG)	II
DOT Pictograms	

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

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> 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). On DSL.
EINECS Number (EEC)	200-835-2
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.
Japanese Regulatory Data	ENCS No. (2)-1508, (2)-1539

**Section XVI. Other Information**

**Version 1.0**  
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**Notice to Reader**

TCl 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.

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