Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	**Harmful compound, minimize exposure.** **Combustible material; avoid heat and sources of ignition.** **Irritating to skin, eyes, and the respiratory system.** **Hygroscopic -- keep container tightly sealed.** **Environmental hazard. Harmful to aquatic life.** **Vesicant.** **Store under Argon.**	

Section I. Chemical Product and Company Identification

Chemical Name: **Benzonitrile**

Catalog Number	B0082
Synonym	Not available.
Chemical Formula	C_7H_5N
CAS Number	100-47-0

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

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
Benzonitrile	100-47-0	Min. 99.0 (GC)	Not available.	Mouse LD_{50} (oral) 971 mg/kg Rabbit LD_{50} (dermal) 1250 mg/kg Rat LD_{50} (intraperitoneal) 740 mg/kg

Section III. Hazards Identification

Acute Health Effects

Vesicant.
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

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Not available.
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.

Section V. Fire and Explosion Data

Flammability	Combustible.	Auto-Ignition	550°C (1022°F)
Flash Points	70 to 75°C (158 to 167°F).	Flammable Limits	LOWER: 1.4% UPPER: 7.2%

Combustion Products

These products are toxic carbon oxides (CO, CO_2), nitrogen oxides (NO_x).
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

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.

Continued on Next Page **Emergency phone number (800) 424-9300**

Section VI. Accidental Release Measures

Spill Cleanup Instructions

Harmful material. Irritating material. Combustible material. Vesicant. Environmentally hazardous material. Hygroscopic material.
Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information

HARMFUL. IRRITANT. COMBUSTIBLE. VESICANT. HYGROSCOPIC. ENVIRONMENTAL HAZARD. STORE UNDER ARGON. 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).

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	Slightly soluble in cold water. Soluble to the extent of 1% in water at 100°. Miscible with common organic solvents.
Specific Gravity	1.01 (water=1)		
Molecular Weight	103.12	Partition Coefficient	Log P_{ow}: 1.56
Boiling Point	191°C (375.8°F)	Vapor Pressure	0.1 kPa (@ 20°C)
Melting Point	-13°C (8.6°F)	Vapor Density	3.6 (Air = 1)
Refractive Index	1.5280 - 1.5300	Volatility	Not available.
Critical Temperature	Not available.	Odor	Characteristic.
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

Avoid excessive heat and light.

Incompatibilities

Reactive with strong oxidizing agents, strong reducing agents, acids, strong alkalis (bases), Chlorates, nitrates, plastics.

Section XI. Toxicological Information

RTECS Number

DI2450000

Routes of Exposure

Eye Contact. Ingestion. Inhalation.

Toxicity Data

Mouse LD_{50} (oral) 971 mg/kg
Rabbit LD_{50} (dermal) 1250 mg/kg
Rat LD_{50} (intraperitoneal) 740 mg/kg

Chronic Toxic Effects

CARCINOGENIC EFFECTS : Not available.
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Acute Toxic Effects

Vesicant.
Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death.
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Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Benzonitrile's production and use as an intermediate for rubber chemicals; solvent for nitrile rubber, specialty lacquers, polymers, and many anhydrous metallic salts; and in the manufacture of benzoguanamine may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 0.768 mm Hg at 25 deg C indicates benzonitrile will exist solely as a vapor in the ambient atmosphere. Vapor-phase benzonitrile 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 49 days. If released to soil, benzonitrile is expected to have moderate mobility based upon an estimated Koc of 168. Volatilization from moist soil surfaces is expected to be an important fate process based upon an estimated Henry's Law constant of 5.21X10-5 atm-cu m/mole. If released into water, benzonitrile is expected to adsorb to suspended solids and sediment based upon the estimated Koc. A screening test using Ohio River water from Cincinnati had theoretical BODs for benzonitrile of 0, 60, and 90% after 2, 5, and 12 days, respectively, which suggests that benzonitrile is biodegradable. Volatilization from water surfaces is expected to be an important fate process based upon this compound's estimated Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 12 hours and 9 days, respectively. An estimated BCF of 3 suggests the potential for bioconcentration in aquatic organisms is low. Chemical hydrolysis is expected to occur slowly under environmental conditions. Occupational exposure to nitriles, such as benzonitrile, may occur through inhalation and dermal contact with this compound at workplaces where benzonitrile is produced or used. Monitoring data indicate that the general population may be exposed to benzonitrile via inhalation of ambient air, and ingestion of food containing benzonitrile.

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	DOT Class 6.1: Toxic material
PIN Number	UN2224
Proper Shipping Name	Benzonitrile
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-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). On DSL
EINECS Number (EEC)	202-855-7
EEC Risk Statements	R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R52- Harmful to aquatic organisms.
Japanese Regulatory Data	ENCS No. 3-1796

Section XVI. Other Information

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Notice to Reader