

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
   	<p><b>Combustible material; avoid heat and sources of ignition.</b>  <b>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</b>  <b>Corrosive to eyes and skin on contact.</b>  <b>This compound is a skin sensitizer.</b>  <b>CARCINOGEN. MINIMIZE EXPOSURE.</b>  <b>DANGER, MAY CAUSE CANCER.</b>  <b>Handle and store under nitrogen.</b></p>	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Hydrazine, Monohydrate</b> (about 80%)		
Catalog Number	H0204	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	Hydrazine Hydroxide		
Chemical Formula	NH <sub>2</sub> NH <sub>2</sub> •H <sub>2</sub> O		
CAS Number	7803-57-8	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
Hydrazine, Monohydrate (about 80%)	7803-57-8	Min. 79.0 (T)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.	Rat LD <sub>50</sub> (oral) 129mg/kg Mouse LD <sub>50</sub> (oral) 83mg/kg Rabbit LD <sub>50</sub> (oral) 55mg/kg

## Section III. Hazards Identification

Acute Health Effects	<p>Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death.</p> <p>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.</p> <p>Skin contact may result in sensitization. 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.</p>
Chronic Health Effects	<p><b>CARCINOGENIC EFFECTS</b> : Not available.  <b>MUTAGENIC EFFECTS</b> : Not available.  <b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects:            Mouse TDLo (dermal) 80 gm/kg/43 weeks, intermittent.            Toxic Effects:            Tumorigenic - Carcinogenic by RTECS criteria.            Lung, Thorax, or Respiration - Tumors.  <b>DEVELOPMENTAL TOXICITY</b> Reproductive effects:            Rat TCLo (inhalation) 10µg/m<sup>3</sup>/5 hours, male 8 weeks prior to mating.            Toxic Effects:            Paternal Effects - Spermatogenesis.            Rat TDLo (oral) 3240 µg/kg, female 24 weeks prior to mating.            Toxic Effects:            Effects on Fertility - Pre-implantation mortality.            Effects on Fertility - Post-implantation mortality.            Hamster TDLo (intramuscular) 150 mg/kg, female 12 days of pregnancy.            Toxic Effects:            Effects on Newborn - Biochemical and metabolic.            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. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</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	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. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

**Section V. Fire and Explosion Data**

Flammability	Combustible.	Auto-Ignition	Not available.
Flash Points	73.88°C (165°F).	Flammable Limits	LOWER: 3.5% UPPER: 99.99%
Combustion Products	These products include nitrogen oxides (NO <sub>x</sub> ).		
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.		

**Section VI. Accidental Release Measures**

Spill Cleanup Instructions	Toxic material. Corrosive material. Combustible material. Carcinogenic material. Possible mutagenic material. Sensitizing material. Handle and store under nitrogen. 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. Use water spray to reduce vapors. 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	TOXIC. CORROSIVE. COMBUSTIBLE. CARCINOGEN. POSSIBLE MUTAGEN. SENSITIZER. HANDLE AND STORE UNDER NITROGEN. Keep locked up.. 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.
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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	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	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a possible mutagen. There is no acceptable exposure limit for a mutagen.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Liquid.	Solubility	Miscible with water and alcohol. Insoluble in chloroform and ether.
Specific Gravity	1.032 (water=1)		
Molecular Weight	32.05 (Anh.)	Partition Coefficient	Not available.
Boiling Point	120.1°C (248.2°F)	Vapor Pressure	0.7 kPa (@ 25°C)
Melting Point	-51.7°C (-61.1°F)	Vapor Density	Not available.
Refractive Index	1.42842 @ 20°C	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

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Emergency phone number (800) 424-9300

**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 oxidizing agents, oxygen, copper, zinc, organic materials. Some metals and alloys including monel, bronze, brass, cadmium, gold, molybdenum and stainless steel with more than 0.5% molybdenum or rust can cause decomposition of hydrazine.

**Section XI. Toxicological Information**

RTECS Number	MV8050000
Routes of Exposure	Eye Contact. Ingestion. inhalation. Skin contact.
Toxicity Data	Rat LD <sub>50</sub> (oral) 129mg/kg Mouse LD <sub>50</sub> (oral) 83mg/kg Rabbit LD <sub>50</sub> (oral) 55mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects: Mouse TDLo (dermal) 80 gm/kg/43 weeks, intermittent. Toxic Effects: Tumorigenic - Carcinogenic by RTECS criteria. Lung, Thorax, or Respiration - Tumors. <b>DEVELOPMENTAL TOXICITY</b> Reproductive effects: Rat TCLo (inhalation) 10µg/m <sup>3</sup> /5 hours, male 8 weeks prior to mating. Toxic Effects: Paternal Effects - Spermatogenesis. Rat TDLo (oral) 3240 µg/kg, female 24 weeks prior to mating. Toxic Effects: Effects on Fertility - Pre-implantation mortality. Effects on Fertility - Post-implantation mortality. Hamster TDLo (intramuscular) 150 mg/kg, female 12 days of pregnancy. Toxic Effects: Effects on Newborn - Biochemical and metabolic. 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. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. 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. Skin contact may result in sensitization. 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	Not available.

**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 8: Corrosive material CLASS 6.1: Poisonous material.
PIN Number	UN2030
Proper Shipping Name	Hydrazine, aqueous solution.
Packing Group (PG)	II
DOT Pictograms	

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

TSCA Chemical Inventory (EPA)	This product is <b>NOT</b> on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list: (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec. (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.
WHMIS Classification (Canada)	CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS E: Corrosive liquid.
EINECS Number (EEC)	Not available.
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R34- Causes burns. R42/43- May cause sensitization by inhalation and skin contact. R45- May cause cancer. R46- May cause heritable genetic damage. R47- May cause birth defects.
Japanese Regulatory Data	Not available.

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 11/15/2001.**  
**Printed 2/25/2005.**

**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.