

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	<p><b>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</b></p> <p><b>Environmental hazard.</b></p> <p><b>This material is very toxic to aquatic organisms. Irritating to skin, eyes, and the respiratory system.</b></p> <p><b>CARCINOGEN. MINIMIZE EXPOSURE.</b></p> <p><b>POSSIBLE MUTAGEN. MINIMIZE EXPOSURE.</b></p> <p><b>Air and light sensitive material.</b></p>	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Hydroquinone</b>		
Catalog Number	H0186	Supplier	TCI America 9211 N. Harborsgate St. Portland OR 1-800-423-8616
Synonym	1,4-Dihydroxybenzene		
Chemical Formula	C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>		
CAS Number	123-31-9	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
Hydroquinone	123-31-9	Min. 99.0 (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) 302 mg/kg Mouse LD <sub>50</sub> (oral) 245 mg/kg Rat LD <sub>50</sub> (intraperitoneal) 170 mg/kg Rat LD <sub>50</sub> (intravenous) 115 mg/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>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><b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria.</p> <p><b>MUTAGENIC EFFECTS</b> : Not available.</p> <p><b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects.</p> <p>Rat TDLo Oral 12875 mg/kg/103 weeks intermittent</p> <p>TOXIC Effects:</p> <p>Tumorigenic – Carcinogenic by RTECS criteria Blood – Leukemia Rat TDLo Oral 25750 mg/kg/2 years continuous</p> <p>TOXIC Effects:</p> <p>Tumorigenic – Carcinogenic by RTECS criteria Blood – Leukemia Rat TDLo Oral 174720 mg/kg/26 weeks continuous</p> <p>TOXIC Effects:</p> <p>Tumorigenic – Carcinogenic by RTECS criteria Lung, Thorax, or Respiration – Tumors Liver – Tumors</p> <p><b>DEVELOPMENTAL TOXICITY</b> : Reproductive Effects.</p> <p>Rat TDLo Oral 667 mg/kg, female 11 days of pregnancy</p> <p>TOXIC Effects:</p> <p>Effects on Fertility – Post implantation mortality Rat TDLo Subcutaneous 550 mg/kg, female 11 days prior to mating</p> <p>TOXIC Effects:</p> <p>Maternal Effects – Menstrual cycle changes or disorders TDLo Subcutaneous 5100 mg/kg, male 51 days prior to mating</p> <p>TOXIC Effects:</p> <p>Paternal Effects – Testes, epididymis, sper duct Paternal Effects – Prostate, seminal vesiculae, Cowper's gland, accessory glands Effects on Fertility – Male fertility index</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 for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
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	May be combustible at high temperature.	Auto-Ignition	499°C (930.2°F)
Flash Points	165°C (329°F)	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</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. Environmentally hazardous material. Irritating material. Carcinogenic material. Possible mutagenic material. Air and light sensitive material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.
----------------------------	--

**Section VII. Handling and Storage**

Handling and Storage Information	TOXIC. ENVIRONMENTAL HAZARD. IRRITANT. CARCINOGEN. POSSIBLE MUTAGEN. AIR AND LIGHT SENSITIVE. Keep locked up. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe dust. 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, alkalis (bases).
----------------------------------	--

**Section VIII. Exposure Controls/Personal Protection**

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
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	Solid. (White, Crystal to Crystalline Powder.)	Solubility	Not available.
Specific Gravity	1.332 (water=1)		
Molecular Weight	110.11	Partition Coefficient	Log K <sub>ow</sub> : 0.59
Boiling Point	285°C (545°F)	Vapor Pressure	1 mmHg @ 132°C
Melting Point	171°C (339.8°F)	Vapor Density	3.81 (Air = 1)
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
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 alkalis (bases).

**Section XI. Toxicological Information**

RTECS Number	MX3500000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD <sub>50</sub> (oral) 302 mg/kg Mouse LD <sub>50</sub> (oral) 245 mg/kg Rat LD <sub>50</sub> (intraperitoneal) 170 mg/kg Rat LD <sub>50</sub> (intravenous) 115 mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects. Rat TDLo Oral 12875 mg/kg/103 weeks intermittent TOXIC Effects: Tumorigenic – Carcinogenic by RTECS criteria Blood – Leukemia Rat TDLo Oral 25750 mg/kg/2 years continuous TOXIC Effects: Tumorigenic – Carcinogenic by RTECS criteria Blood – Leukemia Rat TDLo Oral 174720 mg/kg/26 weeks continuous TOXIC Effects: Tumorigenic – Carcinogenic by RTECS criteria Lung, Thorax, or Respiration – Tumors Liver – Tumors <b>DEVELOPMENTAL TOXICITY</b> : Reproductive Effects. Rat TDLo Oral 667 mg/kg, female 11 days of pregnancy TOXIC Effects: Effects on Fertility – Post implantation mortality Rat TDLo Subcutaneous 550 mg/kg, female 11 days prior to mating TOXIC Effects: Maternal Effects – Menstrual cycle changes or disorders TDLo Subcutaneous 5100 mg/kg, male 51 days prior to mating TOXIC Effects: Paternal Effects – Testes, epididymis, sper duct Paternal Effects – Prostate, seminal vesiculae, Cowper's gland, accessory glands Effects on Fertility – Male fertility index
Acute Toxic Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness 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	Hydroquinone is both a natural and an anthropogenic compound. It may be released to the environment as a fugitive emission during its production, formulation, and use, as a chemical intermediate, photographic chemical, and stabilizer. If released to soil, hydroquinone may biodegrade under aerobic conditions. It may also be removed from soil by oxidation processes or by direct photolysis on the surface. Volatilization of hydroquinone from either moist or dry soil is not expected to occur to any significant extent. Hydroquinone should have high to very high mobility in soil. If released to water, hydroquinone may degrade under both aerobic and anaerobic conditions. Bioconcentration in fish and aquatic organisms is not expected to be an important fate process, nor will it adsorb to sediment and suspended organic matter. Hydroquinone will undergo direct photolysis in water, and it may be degraded in water by oxidative processes. Volatilization of hydroquinone from water to the atmosphere will be too slow to be environmentally important. If released to the atmosphere, hydroquinone will undergo direct photochemical degradation. It may undergo atmospheric removal by the reaction with photochemically produced hydroxyl radicals at an estimated half-life of 16.8 hrs. Hydroquinone may also be removed from the atmosphere by wet deposition processes. Occupational exposure to hydroquinone may occur by dermal contact. Members of the general population who develop their own film may be exposed to hydroquinone.

**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	Not a DOT controlled material (United States).
PIN Number	Not available.
Proper Shipping Name	Not available.
Packing Group (PG)	Not available.
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)	On DSL
EINECS Number (EEC)	204-617-8
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R45- May cause cancer. R46- May cause heritable genetic damage. R47- May cause birth defects. R50- Very toxic to aquatic organisms.
Japanese Regulatory Data	ENCS No. 3-543

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 2/6/2007.**  
**Printed 2/6/2007.**

**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.