Material Safety Data Sheet
Hydroquinone

ACC# 11230

Section 1 - Chemical Product and Company Identification

MSDS Name: Hydroquinone
Catalog Numbers: S80041, H329 500, H329-500, H329500
Synonyms: 1,4 Benzenediol; p-Hydroxybenzene; Hydroquinol; Quinol
Company Identification:
  Fisher Scientific
  1 Reagent Lane
  Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>123-31-9</td>
<td>Hydroquinone</td>
<td>100</td>
<td>204-617-8</td>
</tr>
</tbody>
</table>

Hazard Symbols: XN N
Risk Phrases: 22 40 41 43 50

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless, light tan, or light gray crystals. **Warning!** Harmful if swallowed. May cause allergic skin reaction. This substance has caused adverse reproductive and fetal effects in animals. May cause cancer based on animal studies. May cause digestive tract irritation with nausea, vomiting, and diarrhea. Light sensitive. Air sensitive. Causes eye and skin irritation. May cause respiratory tract irritation. May cause dermatitis. May cause methemoglobinemia.

Target Organs: Central nervous system, respiratory system.

Potential Health Effects

Eye: May cause eye irritation. Repeated exposure may cause corneal abnormalities including structural changes and brownish discoloration which can lead to decreased visual acuity and blindness.

Skin: Causes severe skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May cause dermatitis. Repeated exposure may cause hyperpigmentation of fair skin and depigmentation of dark skin.

Ingestion: May cause severe irritation of the digestive tract. May be harmful if swallowed. May cause dizziness, nausea, sense of suffocation, increased respiratory rate, vomiting, pallor, muscle twitching, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), delirium, collapse. May cause green or brownish green urine which continues to darken upon standing.

Inhalation: May cause respiratory tract irritation. Causes narcotic effects including headache, dizziness, weakness, unconsciousness, and possible death. Vapors may cause dizziness or suffocation. Inhalation of dust...
may cause respiratory tract irritation. Exposure to high concentration of vapor may cause irritation, photophobia, tearing, and corneal ulceration.

**Chronic:** Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration.

### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

**Skin:** Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

**Extinguishing Media:** Use foam, dry chemical, or carbon dioxide.

**Flash Point:** 165 deg C (329.00 deg F)

**Autoignition Temperature:** 516 deg C (960.80 deg F)

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 2; Flammability: 1; Instability: 0

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Provide ventilation.

### Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Use only in a well-ventilated area. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

**Storage:** Store in a cool, dry place. Do not store in direct sunlight.

### Section 8 - Exposure Controls, Personal Protection
**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

<table>
<thead>
<tr>
<th>Exposure Limits</th>
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</thead>
<tbody>
<tr>
<td>Chemical Name:</td>
</tr>
<tr>
<td>Hydroquinone</td>
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</tbody>
</table>

**OSHA Vacated PELs:** Hydroquinone: 2 mg/m3 TWA

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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### Section 9 - Physical and Chemical Properties

**Physical State:** Crystals

**Appearance:** colorless, light tan, or light gray

**Odor:** None reported.

**pH:** Not available.

**Vapor Pressure:** 1 mm Hg @ 132C

**Vapor Density:** 3.8 (air=1)

**Evaporation Rate:** Negligible.

**Viscosity:** Not available.

**Boiling Point:** 285 deg C @ 760.00mm Hg

**Freezing/Melting Point:** 172.00 - 175.00 deg C

**Decomposition Temperature:** Not available.

**Solubility:** 70 G/L WATER (20°C)

**Specific Gravity/Density:** 1.3280g/cm3

**Molecular Formula:** C6H6O2

**Molecular Weight:** 110.11

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### Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures. Substance undergoes color change upon exposure to light and air.

**Conditions to Avoid:** Light, dust generation, moisture.

**Incompatibilities with Other Materials:** Strong oxidizers, alkalies. Undergoes violent reaction with sodium hydroxide.

**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, quinone.

**Hazardous Polymerization:** Has not been reported.

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### Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 123-31-9: MX3500000
LD50/LC50:
CAS# 123-31-9:
Oral, mouse: LD50 = 245 mg/kg;
Oral, rabbit: LD50 = 200 mg/kg;
Oral, rat: LD50 = 302 mg/kg;
Carcinogenicity:
CAS# 123-31-9:
ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans
IARC: IARC Group 3 - not classifiable
Epidemiology: Substance may be involved in cancer-forming processes.
Teratogenicity: No information available.
Reproductive Effects: Fertility: Male index, subcutaneous(sct)-rat TLDo=5100 mg/kg; Post-implantation mortality, oral-rat TDLo=2500 mg/kg. Maternal Effects: Menstrual cycle abnormalities, sct-rat TDLo=550mg/kg;
Ovaries/fallopian tubes, sct-rat TDLo=5mg/kg. Paternal Effects: Prostate/semen vesicle/Cowpers gland/urethra and Testes/sperm duct/epididymis, sct-rat TDLo=5100mg/kg.
Neurotoxicity: No information available.
Mutagenicity: DNA Inhibition: human Hela cell 100umol/L mouse lymphocyte 10umol/L Unscheduled DNA Synthesis: rat oral 8g/kg. Sister Chromatid Exchange: human lymphocyte 5umol/L.
Other Studies: Please refer to RTECS MX3500000 for additional information.

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 0.097 mg/L; 96 Hr.; UnspecifiedFish: Fathead Minnow: LC50 = 0.1-0.18 mg/L; 96 Hr.; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 =0.77-3.97 mg/L; 5,15,30 minutes; Microtox test No data available.
Environmental: Substance has a high biological oxygen demand, and a high potential to affect aquatic organisms. Substance readily biodegrades, and is not likely to bioconcentrate.
Physical: No information available.
Other: None.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

<table>
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<th>Shipping Name:</th>
<th>US DOT</th>
<th>IATA</th>
<th>RID/ADR</th>
<th>IMO</th>
<th>Canada TDG</th>
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<td>HYDROQUINONE</td>
<td>6.1</td>
<td>UN2662</td>
<td>III</td>
<td>HYDROQUINONE</td>
<td>6.1</td>
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Section 15 - Regulatory Information
US FEDERAL

TSCA
CAS# 123-31-9 is listed on the TSCA inventory.

Health & Safety Reporting List
CAS# 123-31-9: Effective 10/4/84; Sunset 10/4/94

Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.

Section 12b
None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RQs
CAS# 123-31-9: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances
CAS# 123-31-9: 500 lb TPQ (lower threshold); 10000 lb TPQ (upper thres hold)

SARA Codes
CAS # 123-31-9: acute, chronic.

Section 313
This material contains Hydroquinone (CAS# 123-31-9, 100%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:
CAS# 123-31-9 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 123-31-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:
XN N

Risk Phrases:
R 22 Harmful if swallowed.
R 40 Limited evidence of a carcinogenic effect.
R 41 Risk of serious damage to eyes.
R 43 May cause sensitization by skin contact.
R 50 Very toxic to aquatic organisms.
R 68 Possible risk of irreversible effects.

Safety Phrases:
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.
**WGK (Water Danger/Protection)**
CAS# 123-31-9: 2

**Canada - DSL/NDSL**
CAS# 123-31-9 is listed on Canada's DSL List.

**Canada - WHMIS**
This product has a WHMIS classification of D1B, D2B.

**Canadian Ingredient Disclosure List**
CAS# 123-31-9 is listed on the Canadian Ingredient Disclosure List.

**Exposure Limits**
CAS# 123-31-9: OEL-AUSTRALIA:TWA 2 mg/m3 OEL BELGIUM:TWA 2 mg/m3 OEL-DENMARK:STEL 2 mg/m3 OEL-FINLAND:TWA 2 mg/m3; STEL 4 mg/m3; Skin OE L-FRANCE:TWA 2 mg/m3 OEL-GERMANY:TWA 2 mg/m3 OEL-THE NETHERLANDS:TWA 2 mg/m3 OEL-THE PHILIPPINES:TWA 2 mg/m3 OEL-Poland:TWA 2 mg/m3 OEL-SWEDEN:TWA 0.5 mg/m3; STEL 1.5 mg/m3 OEL-SWITZERLAND:TWA 2 mg/m3; STEL 4 mg/m3 OEL-TURKEY:TWA 2 mg/m3 OEL-UNITED KINGDOM:TWA 2 mg/m3; STEL 4 mg/m3 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

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**Section 16 - Additional Information**

**MSDS Creation Date:** 6/16/1999
**Revision #4 Date:** 7/22/2002

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