

Material Safety Data Sheet

p-Benzoquinone

ACC# 96461

Section 1 - Chemical Product and Company Identification

MSDS Name: p-Benzoquinone

Catalog Numbers: AC105630000, AC105630010, AC105630050, AC105635000, AC219690000, AC219691000, AC219695000, Q36-500

Synonyms: p-Benzoquinone; 2,5-Cyclohexadiene-1,4-dione; Quinone; 1,4-Benzoquinone; aromatic cyclic diketone.

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

CAS#	Chemical Name	Percent	EINECS/ELINCS
106-51-4	Quinone	> 98	203-405-2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow-green. Flash Point: 77 deg C.

Danger! May be fatal if swallowed. Harmful if inhaled. Causes eye, skin, and respiratory tract irritation.

Target Organs: Eyes, skin.

Potential Health Effects

Eye: Contact may cause discoloration, redness, swelling, and formation of eye lesions. Vapor condensing on the eyes can produce serious disturbances in vision. All layers of the cornea are involved. Recovery, however, occurs upon removal from the exposure.

Skin: Causes skin irritation. Depigmentation and skin lesions may occur. May cause discoloration, erythema (redness), swelling, and the formation of papules and vesicles (blisters). Prolonged contact may lead to necrosis.

Ingestion: May be fatal if swallowed.

Inhalation: Harmful if inhaled. Causes respiratory tract irritation. May cause adverse central nervous system effects including headache, convulsions, and possible death. May produce asphyxia due to pulmonary damage and effects on the hemoglobin. May produce clonic convulsions, respiratory difficulties, decreased blood pressure and death due to medullary centers.

Chronic: Prolonged or repeated exposure may cause permanent eye damage. Prolonged or repeated contact may cause skin necrosis and/or ulceration of the skin.

Section 4 - First Aid Measures

Eyes: 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. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

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. Use water spray to keep fire-exposed containers cool. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion. Violently decomposes when heated under confinement. Water-wet material can decompose violently above 50-70°C (122-158°F).

Extinguishing Media: Use water spray or dry chemical.

Flash Point: 77 deg C (170.60 deg F)

Autoignition Temperature: 560 deg C (1,040.00 deg F)

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 1

Section 6 - Accidental Release Measures

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

Spills/Leaks: Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Remove all sources of ignition. Provide ventilation. Use only non-sparking tools and equipment. Prevent runoff from entering drains, sewers, or streams.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Keep container tightly closed. Use only with adequate ventilation. Avoid breathing dust. Avoid breathing vapor. Keep away from heat and flame. Do not get in eyes. Avoid contact with skin and clothing. Exercise caution in heating, especially in a closed container.

Storage: Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Quinone	0.1 ppm TWA	0.1 ppm TWA; 0.4 mg/m ³ TWA 100 mg/m ³ IDLH	0.1 ppm TWA; 0.4 mg/m ³ TWA

OSHA Vacated PELs: Quinone: 0.1 ppm TWA; 0.4 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. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Crystals

Appearance: yellow-green

Odor: irritating odor - pungent odor

pH: Not applicable.

Vapor Pressure: 0.9 mm Hg @ 20 deg C

Vapor Density: 3.7 (air=1)

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: sublimes

Freezing/Melting Point: 115.7 deg C

Decomposition Temperature: Not available.

Solubility: 1.5% @ 25°C

Specific Gravity/Density: 1.31 g/cm³

Molecular Formula: C₆H₄O₂

Molecular Weight: 108.10

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Water-wet material can decompose violently above 50-70°C (122-158°F).

Conditions to Avoid: High temperatures, dust generation, moisture.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 106-51-4: DK2625000

LD50/LC50:

CAS# 106-51-4:

Oral, mouse: LD50 = 25 mg/kg;

Oral, rat: LD50 = 130 mg/kg;

Carcinogenicity:

CAS# 106-51-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: Sister chromatid exchange, human lymphocyte cells, 5 umol/L. DNA Adduct, human bone marrow: 100 umol/L.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Rainbow trout: LC50 = 0.125 mg/L; 96 Hr.; UnspecifiedFish: Fathead Minnow: LC50 = 0.045 mg/L; 96 Hr.; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 2.09 mg/L; 5-30 minutes; Microtox test No data available.

Environmental: There is a high potential to affect some aquatic organisms. p-Benzoquinone is readily biodegraded and is not likely to bioconcentrate.

Physical: No information available.

Other: No information available.

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:

CAS# 106-51-4: waste number U197.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	BENZOQUINONE	BENZOQUINONE
Hazard Class:	6.1	6.1
UN Number:	UN2587	UN2587
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 106-51-4 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 106-51-4: Effective 10/4/82, Sunset 10/4/92

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.

CERCLA Hazardous Substances and corresponding RQs

CAS# 106-51-4: 10 lb final RQ; 4.54 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 106-51-4: immediate, delayed, fire.

Section 313

This material contains Quinone (CAS# 106-51-4, > 98%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 106-51-4 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# 106-51-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

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:

T N

Risk Phrases:

- R 23/25 Toxic by inhalation and if swallowed.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 50 Very toxic to aquatic organisms.

Safety Phrases:

- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 28A After contact with skin, wash immediately with plenty of water
- S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 106-51-4: 2

Canada - DSL/NDSL

CAS# 106-51-4 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1A, D2B, B3.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 106-51-4 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information
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MSDS Creation Date: 5/07/1999

Revision #4 Date: 11/01/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.