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MATERIAL SAFETY DATA SHEET (MSDS)

P-BENZOQUINONE (FOR SYNTHESIS)

1 - Chemical Product

Product Name:p-Quinone Material Safety Data Sheet
 Synonym:p-Benzoquinone; 2,4-cyclohexadiene-1,4-dione; Quinon

Cas no:106-51-4

Product Coad: B0039700100

Molecular Formula: C₆H₄O₂
 Molecular Weight: 108.0268

2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	content	EINECS#
106-51-4	Quinone	100	203-405-2

3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Toxic by inhalation and if swallowed. Irritating to eyes, respiratory system and skin. Very toxic to aquatic organisms.

Potential Health Effects

Eye:Causes severe eye burns. Contact may cause discoloration, redness, swelling, and formation of eye lesions. May cause corneal edema, ulceration, and scarring. Prolonged exposure to vapor can lead to gradual deposition of pigment in the cornea and conjunctiva which may result in severe visual disturbances. Causes small opacities of the cornea and structural corneal changes that result in loss of visual activity.

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:Harmful if swallowed. May cause irritation of the digestive tract.

Ingestion may cause convulsions, seizures and possible coma.

Inhalation: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.

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:

Antidote: None reported.

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.

Extinguishing Media:In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

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.

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7 - HANDLING and STORAGE

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Minimize dust generation and accumulation. May form flammable dust-air mixtures.

Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale.

Storage:

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

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.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Color: yellow or green

Odor: chlorine-like

pH: Not available.

Vapor Pressure: Negligible

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: 113 - 115 C

Autoignition Temperature: 815 deg F (435.00 deg C)

Flash Point: 100-200F

Explosion Limits, lower: Not available.

Explosion Limits, upper: Not available.

Decomposition Temperature: Not available.

Solubility in water: Slightly soluble in water.

Specific Gravity/Density: 1.3180

Molecular Formula: C₆H₄O₂

Molecular Weight: 108.0268

10 - STABILITY AND REACTIVITY

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

High temperatures, incompatible materials.

Incompatibilities with Other Materials:

Oxidizing agents. Attacks some forms of coatings, plastics and rubber.

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

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:

Quinone - Not listed by ACGIH, IARC, or NTP.

Other:

See actual entry in RTECS for complete information.

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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

13 - DISPOSAL CONSIDERATIONS

Products which are considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local waste regulator for advice. Empty containers must be decontaminated before returning for recycling.

14 - TRANSPORT INFORMATION

IATA

Shipping Name: BENZOQUINONE

Hazard Class: 6.1

UN Number: 2587

Packing Group: II

IMO

Shipping Name: BENZOQUINONE

Hazard Class: 6.1

UN Number: 2587

Packing Group: II

RID/ADR

Shipping Name: BENZOQUINONE

Hazard Class: 6.1

UN Number: 2587

Packing group: II

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

15 - REGULATORY INFORMATION

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 28 After contact with skin, wash immediately with...

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 106-51-4: 2

United Kingdom Occupational Exposure Limits

CAS# 106-51-4: OES-United Kingdom, TWA 0.1 ppm TWA; 0.45 mg/m3 TWA

CAS# 106-51-4: OES-United Kingdom, STEL 0.3 ppm STEL; 1.3 mg/m3 STEL

United Kingdom Maximum Exposure Limits

Canada

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

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

Exposure Limits

CAS# 106-51-4: OEL-ARAB Republic of Egypt:TWA 0.1 ppm (0.4 mg/m3)

OEL-AUSTRALIA:TWA 0.1 ppm (0.4 mg/m3)

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MATERIAL SAFETY DATA SHEET (MSDS)**P-BENZOQUINONE (FOR SYNTHESIS)**

OEL-AUSTRIA:TWA 0.1 ppm (0.4 mg/m3)
OEL-BELGIUM:TWA 0.1 ppm (0.44 mg/m3)
OEL-DENMARK:TWA 0.1 ppm (0.4 mg/m3)
OEL-FINLAND:TWA 0.1 ppm (0.4 mg/m3);STEL 0.3 ppm;Skin
OEL-FRANCE:TWA 0.1 ppm (0.4 mg/m3);STEL 0.3 ppm (1.5 mg/m3)
OEL-GERMANY:TWA 0.1 ppm (0.4 mg/m3)
OEL-THE NETHERLANDS:TWA 0.1 ppm (0.4 mg/m3)
OEL-THE PHILIPPINES:TWA 5 ppm (15 mg/m3)
OEL-RUSSIA:STEL 0.05 mg/m3
OEL-SWEDEN:TWA 0.1 ppm (0.4 mg/m3);STEL 0.3 ppm (1.3 mg/m3)
OEL-SWITZERLAND:TWA 0.1 ppm (0.4 mg/m3);STEL 0.2 ppm (0.8 mg/m3)
OEL-TURKEY:TWA 0.1 ppm (0.4 mg/m3)
OEL-UNITED KINGDOM:TWA 0.1 ppm (0.4 mg/m3);STEL 0.3 ppm
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV
US FEDERAL
TSCA
CAS# 106-51-4 is listed on the TSCA inventory.

16. Other Information

Product Use: Laboratory Reagent.

In accordance with REACH Regulation (CE) N° 1907/2006 and with CLP Regulation (CE) N° 1272/2008

DISCLAIMER:

- **SUVCHEM** Products are to be used as Lab Chemicals for R&D only. Not for drug, medicinal, household or other uses.
- **SUVCHEM** shall not be responsible for any damage resulting from handling or from contact with the above product.
- **SUVCHEM** provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

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