

OTTO CHEMIE PVT LTD

201, 51-53 Maroo Bhavan, Kalbadevi, Mumbai – 400002, India. Tel : + 91 22 2207 0099 / 6638 2599

Email : info@ottokemi.com, Web : www.ottokemi.com

ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

p-Benzoquinone, 99%
Code B 1605

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 3

Skin irritation, Category 2

Eye irritation, Category 2

Acute toxicity - Inhalation, Category 3

Specific target organ toxicity - single exposure, Category 3

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Hazard statement(s)

Danger

H301 Toxic if swallowed

H315 Causes skin irritation

H319 Causes serious eye irritation

H331 Toxic if inhaled

H335 May cause respiratory irritation

H400 Very toxic to aquatic life

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P332+P313 If skin irritation occurs: Get medical advice/attention.

P362+P364 Take off contaminated clothing and wash it before reuse.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P311 Call a POISON CENTER/doctor

P312 Call a POISON CENTER/doctor if you feel unwell.

P391 Collect spillage.

Storage

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification
none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
1,4-benzoquinone	1,4-benzoquinone	106-51-4	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Give a slurry of activated charcoal in water to drink. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Poisonous; may be fatal if inhaled, swallowed or absorbed through the skin. Contact with solid, vapor or solution can cause severe local damage to the skin and mucous membranes. Symptoms include discoloration, severe irritation, erythema, swelling, papules and vesicles. Necrosis may result from long exposure. The eyes may experience irritation, conjunctivitis, photophobia, lacrymation and burning sensations. The cornea may suffer ulceration and scarring. Chronic eye exposure causes gradual brownish discoloration of the conjunctiva and cornea, small corneal opacities and damage in corneal structure which cause loss of visual acuity. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Absorption, Distribution and Excretion

QUINONE IS READILY ABSORBED FROM GASTROENTERIC TRACT & SC TISSUES. IT IS PARTIALLY EXCRETED UNCHANGED; BUT BULK IS ELIMINATED IN CONJUGATION WITH HEXURONIC, SULFURIC, & OTHER ACIDS.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Extinguishant: Water spray, dry chemical, carbon dioxide.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Contain irritating and toxic fumes, including carbon dioxide and carbon monoxide.

Behavior in Fire: Cylinder may explode in heat of fire. In powder form, it is capable of producing a dust explosion. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

1) VENTILATE AREA OF SPILL. 2) FOR SMALL QUANTITIES, SWEEP ONTO PAPER OR OTHER SUITABLE MATERIAL, PLACE IN APPROPRIATE CONTAINER & BURN IN SAFE PLACE (SUCH AS FUME HOOD). LARGE QUANTITIES MAY BE RECLAIMED; HOWEVER, IF ... NOT PRACTICAL, DISSOLVE IN FLAMMABLE SOLVENT (SUCH AS ALCOHOL) & ATOMIZE IN SUITABLE COMBUSTION CHAMBER EQUIPPED WITH APPROPRIATE EFFLUENT GAS CLEANING DEVICE.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from combustible substances, reducing agents and food and feedstuffs. Cool. Dry.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 0.4 mg/cu m (0.1 ppm).

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves

after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state	yellow to green crystalline solid
Colour	YELLOW MONOCLINIC PRISMS FROM WATER OR PETROLEUM ETHER
Odour	PENETRATING ODOR RESEMBLING THAT OF CHLORINE
Melting point/ freezing point	19\u00b0C(lit.)
Boiling point or initial boiling point and boiling range	177\u00b0C(lit.)
Flammability	Combustible SolidFlammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	77\u00b0C
Auto-ignition temperature	435\u00b0C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water:10 g/L (25 \u00b0C)
Partition coefficient n-octanol/water (log value)	Log Kow = 0.20
Vapour pressure	0.1 mm Hg (25 \u00b0C)
Density and/or relative density	1.318
Relative vapour density	3.73 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

May darken on standing.

10.3 Possibility of hazardous reactions

Combustible.Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.BENZOQUINONE acts as an oxidizing agent .

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Contact with strong oxidizers may cause fires & explosions.

10.6 Hazardous decomposition products

Toxic gases & vapors (such as quinone fumes & carbon monoxide) may be released in a fire involving quinone.

11. Toxicological information

Acute toxicity

Oral: LD50 Rat oral 130 mg/kg

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Evaluation: No epidemiological data relevant to the carcinogenicity of 1,4-benzoquinone were available. There is inadequate evidence in experimental animals for the carcinogenicity of 1,4-benzoquinone. Overall evaluation: 1,4-Benzoquinone is not classifiable as to its carcinogenicity to humans (Group 3).

Reproductive toxicity

No information is available on the reproductive or developmental effects of quinone in humans or animals.

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

Fourteen strains of phenol-utilizing bacteria isolated from soil did not visibly grow when using 1,4-benzoquinone as a carbon source in an aqueous mineral salts media over 5 days of incubation(1).

12.3 Bioaccumulative potential

An estimated BCF value of 0.84 was calculated for 1,4-benzoquinone(SRC), using an experimental log Kow value of 0.20(1) and a recommended regression derived equation(2). According to a recommended classification scheme(3), this BCF value suggests that bioconcentration in aquatic organisms will not be an important fate process(SRC).

12.4 Mobility in soil

Based on a log Kow value of 0.20(1) and a regression-derived equation(2,SRC), the Koc value for 1,4-benzoquinone can be estimated to be about 30(SRC). According to a suggested classification scheme(3), this estimated Koc value suggests that 1,4-benzoquinone has high mobility in soil(SRC).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. Transport information

14.1 UN Number

ADR/RID: UN2587

IMDG: UN2587

IATA: UN2587

14.2 UN Proper Shipping Name

ADR/RID: BENZOQUINONE

IMDG: BENZOQUINONE

IATA: BENZOQUINONE

14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

14.4 Packing group, if applicable

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: yes

IMDG: yes

IATA: yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15. Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
1,4-benzoquinone	1,4-benzoquinone	106-51-4	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.