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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Hydroquinone, 99%
Code H 1535

2. Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 4
Serious eye damage, Category 1
Skin sensitization, Category 1
Germ cell mutagenicity, Category 2
Carcinogenicity, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed
H318 Causes serious eye damage
H317 May cause an allergic skin reaction
H341 Suspected of causing genetic defects
H351 Suspected of causing cancer
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.
P272 Contaminated work clothing should not be allowed out of the workplace.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330 Rinse mouth.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor
P302+P352 IF ON SKIN: Wash with plenty of water/...
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P321 Specific treatment (see ... on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P308+P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/container to ...

Storage

Disposal

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
hydroquinone	hydroquinone	123-31-9	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. Artificial respiration may be needed. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

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. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

This material is very toxic; the probable oral lethal dose for humans is 50-500 mg/kg, or between 1 teaspoon and 1 ounce for a 150 lb. person. It is irritating but not corrosive. Fatal human doses have ranged from 5-12 grams, but 300-500 mg have been ingested daily for 3-5 months without ill effects. Death is apparently initiated by respiratory failure or anoxia. (EPA, 1998)

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

/SRP:/ Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Aniline and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

To fight fire, use water, carbon dioxide, dry chem

5.2 Specific hazards arising from the chemical

Dust cloud may explode if ignited in an enclosed area. It can react with oxidizing materials and is rapidly oxidized in the presence of alkaline materials. Oxidizes in air. (EPA, 1998)

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 sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Environmental Considerations: Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash, cement powder, or commercial sorbents. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./

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

Separated from strong bases and food and feedstuffs. Keep well closed and protected from light.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 15 Min Ceiling Value: 2 mg/cu m.

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	off-white powder or white needle-like crystals
Colour	White crystals
Odour	Odorless
Melting point/ freezing point	2\u00b0C(lit.)
Boiling point or initial boiling point and boiling range	285\u00b0C(lit.)
Flammability	Combustible Solid; dust cloud may explode if ignited in an enclosed area. Combustible.
Lower and upper explosion limit / flammability limit	no data available
Flash point	165\u00b0C
Auto-ignition temperature	498.89\u00b0C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water: 70 g/L (20 \u00b0C)
Partition coefficient n-octanol/water (log value)	no data available
Vapour pressure	1 mm Hg (132 \u00b0C)
Density and/or relative density	1.332
Relative vapour density	3.81 (vs air)
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Its solution becomes brown in air due to oxidation.

10.3 Possibility of hazardous reactions

Fire hazard: slight, when exposed to heat or flame; can react with oxidizing materials. Dust explosion possible if in powder or granular form, mixed with air. HYDROQUINONE is a slight explosion hazard when exposed to heat. Incompatible with strong oxidizing agents. Also incompatible with bases. It reacts with oxygen and sodium hydroxide. Reacts with ferric salts. Hot and/or concentrated NaOH can cause hydroquinone to decompose exothermically at elevated temperature. (NFPA Pub. 491M, 1975, 385)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Strong oxidizers, alkalis.

10.6 Hazardous decomposition products

no data available

11. Toxicological information

Acute toxicity

Oral: LD50 Rat oral 320 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: There is inadequate evidence in humans for the carcinogenicity of hydroquinone. There is limited evidence in experimental animals for the carcinogenicity of hydroquinone. Overall evaluation: Hydroquinone is not classifiable as to its carcinogenicity to humans (Group 3).

Reproductive toxicity

No information is available on the reproductive or developmental effects of hydroquinone in humans. A slight reduction in maternal body weight gain, decreased fetal weight, increased resorption rate, and reduced fertility in males have been observed in rats orally exposed to hydroquinone via gavage or in the diet. Exposure of rabbits to hydroquinone via gavage produced negligible developmental alterations.

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: LC50; Species: Danio rerio (Zebra danio) length 2.5 cm; Conditions: freshwater, static, 22°C, pH 7-7.8, hardness 150 mg/L CaCO₃; Concentration: <1000 ug/L for 24 hr

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea) age 6-24 hr; Conditions: freshwater, static, 20°C, pH > or =7.0; Concentration: 320 ug/L for 24 hr (95% confidence interval: 270-380 ug/L); Effect: intoxication, immobilization /formulation

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Hydroquinone at a concentration of 0.05 mg/L underwent 7.5% removal in 5 days when inoculated with an activated sludge seed(1,2). Sewage sludge activated to phenol was found to oxidize hydroquinone(3,4). Pure culture oxidation of hydroquinone produced 1,4-benzoquinone, 2-hydroxy-1,4-benzoquinone and beta-ketoadipic acid(5). In a screening study using a sewage seed, hydroquinone had a 5 day theoretical BOD of 25.3%(6). Hydroquinone at an initial concentration of 200 mg/L COD underwent 54.2% removal (less than 120 hours) using a thickened adapted activated sludge under aerobic conditions(7). Activated sludges adapted to aniline, phenol or m-cresol were found to biodegrade hydroquinone under aerobic conditions(8). It was listed as undergoing rapid biodegradation in a commercial activated sludge unit under aerobic conditions(9).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for hydroquinone(SRC), using a log Kow of 0.59(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC). A bioaccumulation factor of 40 was measured using Golden ide fish (Leuciscus idus melanotus) exposed for 3 days to 0.05 mg/L hydroquinone(4,5). Experimental 24-hour bioaccumulation factors in alga were 40 and 65 for hydroquinone(4-6).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of hydroquinone is estimated as 240(SRC). According to a classification scheme(2), this estimated Koc value suggests that hydroquinone is expected to have moderate mobility in soil. Hydroquinone can exhibit chemisorption to transition metal-containing particulate matter via reaction with the copper oxide/silica surfaces present(3).

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: UN3077

IMDG: UN3077

IATA: UN3077

14.2 UN Proper Shipping Name

ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA: 9

14.4 Packing group, if applicable

ADR/RID: III

IMDG: III

IATA: III

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
hydroquinone	hydroquinone	123-31-9	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	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.

