

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 12/21/2009

Reviewed on 12/18/2009

**1 Identification of substance:****Product details:****Product name:** Hydroquinone**Stock number:**

A11411

L02558

**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

**Information Department:** Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

**2 Composition/Data on components:****Chemical characterization:****Description: (CAS#)**

Hydroquinone (CAS# 123-31-9)

**Identification number(s):****EINECS Number:** 204-617-8**Index number:** 604-005-00-4**3 Hazards identification****Hazard description:**

Xn Harmful

N Dangerous for the environment

**Information pertaining to particular dangers for man and environment**

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 68 Possible risk of irreversible effects.

R 50 Very toxic to aquatic organisms.

**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2

Flammability = 1

Reactivity = 1

**GHS label elements****Danger**

3.3/1 - Causes serious eye damage.

**Warning**

3.5/2 - Suspected of causing genetic defects.

3.6/2 - Suspected of causing cancer.

**Warning**

4.1/1 - Very toxic to aquatic life.

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**Warning**

3.1/4 - Harmful if swallowed.

3.4/1 - May cause an allergic skin reaction.

**Prevention:**

Avoid release to the environment.

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

**Response:**

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

**4 First aid measures****After inhalation**

Supply fresh air and to be sure call for a doctor.

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek immediate medical advice.**5 Fire fighting measures****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

**Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

**Information about protection against explosions and fires:** Keep ignition sources away.**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Store away from oxidizing agents.**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

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**8 Exposure controls and personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with limit values that require monitoring at the workplace:**

Hydroquinone

	mg/m3
ACGIH TLV	2; Confirmed animal carcinogen w/ unknown
Austria MAK	2
Belgium TWA	2
Denmark TWA	2
Finland TWA	2; 4-STEL (skin)
France VME	2
Germany	Carcinogen
Korea TLV	2; Confirmed animal carcinogen w/ unknown
Netherlands MAC-TGG	2
Poland TWA	2; 4-STEL
Sweden NGV	0.5; 1.5-KTV
Switzerland MAK-W	2; 4-KZG-W
United Kingdom	2=LTEL; 4-STEL
USA PEL	2

**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

**Eye protection:**

Safety glasses

Tightly sealed goggles

**Body protection:** Protective work clothing.

**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Crystalline
<b>Color:</b>	White
<b>Odor:</b>	Odorless

**Change in condition**

<b>Melting point/Melting range:</b>	172-175°C (342-347°F)
<b>Boiling point/Boiling range:</b>	287°C (549°F)
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:** 165°C (329°F)

**Ignition temperature:** 515°C (959°F)

**Decomposition temperature:** Not determined

**Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

**Vapor pressure:** Not determined

**Density at 20°C (68°F):** 1.33 g/cm<sup>3</sup>

**Solubility in / Miscibility with  
Water at 20°C (68°F):** 70 g/l

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**pH-value (70 g/l) at 20°C (68°F): 3.75****10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:** Oxidizing agents**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:** Carbon monoxide and carbon dioxide**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	245 mg/kg (mouse)
		302 mg/kg (rat)
Dermal	LDLo	29 mg/kg (human)
	LD50	5970 mg/kg (mam)
		>900 mg/kg (rat)
Irritation of skin	mild	2 % (human)

**Primary irritant effect:****on the skin:** May cause irritation**on the eye:** Strong irritant with the danger of severe eye injury.**Sensitization:** Sensitization possible through skin contact.**Other information (about experimental toxicology):**

Tumorigenic effects have been observed on tests with laboratory animals.

Reproductive effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with human lymphocytes.

Mutagenic effects have been observed on tests with laboratory animals.

**Subacute to chronic toxicity:**

Hydroquinone is a cancer suspect agent, allergen and irritant. Skin contact may cause irritation or dermatitis. Ingestion may cause increased rate of respiration, vomiting, pallor, muscle twitching, headache, dyspnea, cyanosis, delirium and collapse. Eye contact may cause irritation, keratitis and discoloration of the conjunctiva. Tumorigenic effects in animal tests have been reported. Positive mutagenicity results in animal cells have been reported. Reproductive effects in animals have been reported.

**Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - coma.

Behavioral - tremor.

Behavioral - convulsions or effect on seizure threshold.

Behavioral - excitement.

Behavioral - changes in motor activity (specific assay).

Behavioral - tetany.

Behavioral - ataxia.

Gastrointestinal - nausea or vomiting.

Gastrointestinal - ulceration or bleeding from stomach.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Nutritional and Gross Metabolic - other changes.

Liver - changes in liver weight.

Liver - tumors.

Related to Chronic Data - death.

Skin and Appendages - dermatitis, allergic (after systemic exposure).

Skin and Appendages - hair.

Vascular - regional or general arteriolar or venous dilation.

Blood - methemoglobinemia-carboxyhemoglobin.

Blood - changes in bone marrow (not otherwise specified).

Blood - changes in spleen.

Blood - normocytic anemia.

Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).

Blood - changes in erythrocyte (RBC) count.

Blood - leukemia.

Blood - changes in cell count (unspecified).

Peripheral Nerve and Sensation - spastic paralysis with or without sensory change.

Endocrine - thyroid weight (goiter).

Brain and Coverings - changes in brain weight.

Cardiac - other changes.

Cardiac - pulse rate increase, without fall in BP.

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Lungs, Thorax, or Respiration - cyanosis.  
 Lungs, Thorax, or Respiration - dyspnea.  
 Lungs, Thorax, or Respiration - tumors.  
 Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).  
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other enzymes.  
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - phosphatases.  
 Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - multiple enzyme effects.  
 Kidney, Ureter, Bladder - Kidney tumors.  
 Reproductive - Fertility - post-implantation mortality (e.g. dead/or resorbed implants per total number of implants).  
 Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth).  
 Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue).  
 Reproductive - Specific Developmental Abnormalities - musculoskeletal system.  
 Reproductive - Maternal Effects - ovaries, fallopian tubes.  
 Reproductive - Paternal Effects - testes, epididymis, sperm duct.  
 Reproductive - Paternal Effects - prostate, seminal vesicle, Cowper's gland, accessory glands.  
 Reproductive - Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females)  
 Endocrine - effect on menstrual cycle.  
 Tumorigenic - carcinogenic by RTECS criteria.  
 Tumorigenic - facilitates action of known carcinogen  
 Tumorigenic - neoplastic by RTECS criteria.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

IARC-3: Not classifiable as to carcinogenicity to humans.

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

**12 Ecological information:****Ecotoxicological effects:**

**Remark:** Very toxic for fish

**General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

**13 Disposal considerations****Product:**

**Recommendation** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information****DOT regulations:****Hazard class:**

9

**Identification number:**

UN3077

**Packing group:**

III

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**Product name:** Hydroquinone

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**Proper shipping name (technical name):** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(Hydroquinone)  
**Label:** 9  
**Remarks:** Special marking with the symbol (fish and tree).

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** 9 (M7) Miscellaneous dangerous substances and articles  
**UN-Number:** 3077  
**Packaging group:** III  
**Special marking:** Symbol (fish and tree)  
**Description of goods:** 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Hydroquinone)

**Maritime transport IMDG:**

**IMDG Class:** 9  
**UN Number:** 3077  
**Label:** 9  
**Packaging group:** III  
**Marine pollutant:** Yes (P)  
**Proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Hydroquinone)

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 9  
**UN/ID Number:** 3077  
**Label:** 9  
**Special marking:** Symbol (fish and tree)  
**Packaging group:** III  
**Proper shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Hydroquinone)

**UN "Model Regulation":** UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III

**15 Regulations****Product related hazard informations:****Hazard symbols:**

Xn Harmful  
N Dangerous for the environment

**Risk phrases:**

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

**Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
61 Avoid release to the environment. Refer to special instructions/Safety data sheets

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**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

**Information about limitation of use:**

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing MSDS:** Health, Safety and Environmental Department.

**Contact:** Zachariah Holt

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

P: Marine Pollutant

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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