

# SAFETY DATA SHEET

Version 8.5  
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Hydroquinone for synthesis

Product Number : 8.22333  
Catalogue No. : 822333  
Brand : Millipore  
CAS-No. : 123-31-9

### 1.2 Other means of identification

No data available

### 1.3 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Chemical for synthesis

### 1.4 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Pty. Ltd.  
Suite 1, Level 1, Building B  
11 Talavera Road  
MACQUARIE PARK NSW 2113  
AUSTRALIA

Telephone : +61 1800 800 097

### 1.5 Emergency telephone

Emergency Phone # : Free call (24/7): 1800 448 465  
Int'l (24/7): +61 2 9037 2994  
(CHEMTREC)

## SECTION 2: Hazards identification

### 2.1 GHS Classification

Acute toxicity, Oral (Category 4), H302  
Serious eye damage/eye irritation (Category 1), H318  
Germ cell mutagenicity (Category 2), H341  
Carcinogenicity (Category 2), H351  
Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard statement(s)	
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
Prevention	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response	
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
Disposal	
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Other hazards - none

## SECTION 3: Composition/information on ingredients

Substance / Mixture : Substance

### 3.1 Substances

Formula : C<sub>6</sub>H<sub>6</sub>O<sub>2</sub>  
Molecular weight : 110.11 g/mol  
CAS-No. : 123-31-9  
EC-No. : 204-617-8  
Index-No. : 604-005-00-4

#### Hazardous ingredients

Component	Classification	Concentration
<b>hydroquinone</b>	Acute Tox. 4; Eye Dam./Irrit. 1; Muta. 2; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H318, H341, H351, H400, H410 M-Factor - Aquatic Acute: 1	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**6.4 Reference to other sections**

For disposal see section 13.

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**SECTION 7: Handling and storage****7.1 Precautions for safe handling****Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities****Storage conditions**

Protected from light. Tightly closed. Dry.

Recommended storage temperature see product label.

**Storage class**

Storage class (TRGS 510): 13: Non Combustible Solids

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.3 no other specific uses are stipulated.

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**SECTION 8: Exposure controls/personal protection****8.1 Control parameters****Ingredients with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
hydroquinone	123-31-9	TWA	2 mg/m <sup>3</sup>	Australia. Workplace Exposure Standards for Airborne Contaminants.
	Remarks	Category 2 (Carc. 2) Suspected human carcinogen		

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

#### Body Protection

protective clothing

#### Respiratory protection

required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |                                 |                       |
|---------------------------------|-----------------------|
| a) Physical state               | solid                 |
| b) Color                        | off-white             |
| c) Odor                         | No data available     |
| d) Melting point/freezing point | Melting point: 171 °C |

e) Initial boiling point and boiling range	287 °C at 1,013 hPa
f) Flammability (solid, gas)	The product is not flammable. - Flammability (solids)
g) Upper/lower flammability or explosive limits	No data available
h) Flash point	165 °C at ca.1,013 hPa - closed cup
i) Autoignition temperature	515.56 °C at 1,013 hPa
j) Decomposition temperature	No data available
k) pH	3.7 at 70 g/l
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m) Water solubility	72 g/l at 25 °C - completely soluble
n) Partition coefficient: n-octanol/water	log Pow: 0.59 at 20 - 25 °C - Bioaccumulation is not expected.
o) Vapor pressure	1 hPa at 132 °C
p) Density	1.332 g/cm <sup>3</sup> at 15 °C
Relative density	No data available
q) Relative vapor density	No data available
r) Particle characteristics	No data available
s) Explosive properties	No data available
t) Oxidizing properties	none

## 9.2 Other safety information

Bulk density	ca.600 kg/m <sup>3</sup>
Relative vapor density	3.80 - (Air = 1.0)

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.  
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

increased reactivity with:

Millipore- 8.22333

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The life science business of Merck operates as MilliporeSigma in the US and Canada

Aluminum  
Risk of explosion with:  
Oxygen  
Exothermic reaction with:  
Strong oxidizing agents  
alkalines  
Violent reactions possible with:  
Sodium hydroxide

#### **10.4 Conditions to avoid**

Strong heating.

#### **10.5 Incompatible materials**

Strong oxidizing agents

#### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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### **SECTION 11: Toxicological information**

#### **11.1 Information on toxicological effects**

##### **Acute toxicity**

LD50 Oral - Rat - female - 367.3 mg/kg  
(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg

##### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 24 h

Remarks: (ECHA)

##### **Serious eye damage/eye irritation**

Remarks: Causes serious eye damage.

(Regulation (EC) No 1272/2008, Annex VI)

##### **Respiratory or skin sensitization**

Local lymph node assay (LLNA) - Mouse

Result: see user defined free text

May cause sensitization by skin contact.

(OECD Test Guideline 429)

##### **Germ cell mutagenicity**

Suspected of causing genetic defects.

##### **Carcinogenicity**

Suspected of causing cancer.

##### **Reproductive toxicity**

No data available

##### **Specific target organ toxicity - single exposure**

No data available

##### **Specific target organ toxicity - repeated exposure**

No data available

##### **Aspiration hazard**

No data available

## 11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - NOAEL (No observed adverse effect level) - 50 mg/kg

Remarks: (ECHA)

Repeated dose toxicity - Rat - male and female - Dermal - NOAEL (No observed adverse effect level) - 73.9 mg/kg

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish	flow-through test LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 0.638 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - <i>Daphnia magna</i> (Water flea) - 0.134 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test EC50 - <i>Pseudokirchneriella subcapitata</i> - 0.33 mg/l - 72 h (OECD Test Guideline 201)  static test NOEC - <i>Pseudokirchneriella subcapitata</i> - 0.019 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - <i>Pimephales promelas</i> (fathead minnow) - $\geq$ 100 mg/l - 32 d (OECD Test Guideline 210)

### 12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 14 d  
Result: 70 % - Readily biodegradable.  
(OECD Test Guideline 301C)

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Endocrine disrupting properties

No data available

### 12.7 Other adverse effects

Biological effects:

Formation of health-hazardous mixtures possible with water.

Hazard for drinking water supplies.

Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 3077

IMDG: 3077

IATA-DGR: 3077

### 14.2 UN proper shipping name

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

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(hydroquinone)

IATA-DGR: Environmentally hazardous substance, solid, n.o.s. (hydroquinone)

### 14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA-DGR: 9

### 14.4 Packaging group

ADR/RID: III

IMDG: III

IATA-DGR: III

### 14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA-DGR: yes

### 14.6 Special precautions for user

### 14.7 Incompatible materials

Strong oxidizing agents

#### Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

#### Other regulations

Hazchem Code : 2Z

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Standard for the Uniform Scheduling of Medicines and Poisons

: No poison schedule number allocated

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**SECTION 16: Other information****Full text of H-Statements referred to under sections 2 and 3.**

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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