



Safety Data Sheet

Version: 1.2

Revision date: SEPT-01-2023

Retrieve on: SEPT-10-2023

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

1.1 Product identifiers

Product name	:	1,4-Benzoquinone
REACH No.	:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	:	106-51-4
Index-No.	:	CH-S6-B001

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company VALERIAN LABS HOLDING CORP
Address 1130-1971 BROADWAY STREETPORT
COQUITLAM, BC V3C 0C9 CANADA
Telephone +1 (604)-710-0869
E-mail: info@valerianlabs.com

1.4 Emergency telephone

Number: 1-888-226-8832 CANUTEC (CANADA)
1-800-424-9300 CHEMTREC (USA)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

In accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Flammable solids (Category 1), H228
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Skin corrosion (Sub-category 1B), H314
Serious eye damage (Category 1), H318





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Skin sensitization (Category 1), H317
Germ cell mutagenicity (Category 2), H341
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
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 Label elements

Labelling in accordance with GHS Standards

Pictogram



Signal Word

Danger

Hazard statement(s)

H228

Flammable solid.

H301 + H331

Toxic if swallowed or if inhaled.

H314

Causes severe skin burns and eye damage.

H317

May cause an allergic skin reaction.

H335

May cause respiratory irritation.

H341

Suspected of causing genetic defects.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260

Do not breathe dust.

P280

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

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338

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

Supplemental Hazard Statements

none

Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Danger

Hazard statement(s)

H317

May cause an allergic skin reaction.

H341

Suspected of causing genetic defects.

H314

Causes severe skin burns and eye damage.

H301 + H331

Toxic if swallowed or if inhaled.





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Precautionary statement(s)

P260	Do not breathe dust.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Quinone
Formula	:	C ₆ H ₄ O ₂
Molecular weight	:	108,09 g/mol
CAS-No.	:	106-51-4
EC-No.	:	203-405-2

Component	Classification	Concentration
p-benzoquinone		
CAS-No. 106-51-4 EC-No. 203-405-2	Flam. Sol. 1; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Muta. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H228, H301, H331, H314, H318, H317, H341, H335, H400, H410	<= 100 %

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor





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If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

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

In case of eye contact

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

If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) 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

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.





SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. 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. Risk of explosion.

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 carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

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

Tightly closed. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Light sensitive. Moisture sensitive.

Storage class

Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated





SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/Face Protection:

- Select eye protection equipment that has been tested and approved in accordance with the relevant government standards, such as NIOSH (US) or EN 166 (EU). Utilize tightly fitting safety goggles.

Skin Protection:

- When handling, wear gloves that are inspected before use.
- Employ the correct glove removal technique (avoiding contact with the outer surface of the gloves) to prevent skin contact with this product. Dispose of contaminated gloves in accordance with applicable
- laws and good laboratory practices. Thoroughly wash and dry your hands.
- If this product is used in a solution, mixed with other substances, or under conditions that differ from EN 374, please contact the supplier of EC approved gloves.
- This recommendation serves as advisory guidance and should be evaluated by an industrial hygienist and safety officer who are familiar with the specific usage circumstances of our customers. It should not be interpreted as providing approval for any particular use scenario.

Body Protection:

- Wear acid-resistant protective clothing.

Respiratory Protection:

- In situations where the risk assessment indicates that air-purifying respirators are appropriate, utilize a full-face particle respirator type N100 (US) or type P3 (EN 143)
- respirator cartridges as a backup to engineering controls.
- If the respirator is the sole means of protection, use a full-face supplied air respirator. Employ respirators and components that have been tested and approved in accordance with the relevant government standards, such as NIOSH (US) or CEN (EU).

Control of Environmental Exposure:

- Prevent the product from entering drains.





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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|---|
| a) Physical state | powder |
| b) Color | dark yellow |
| c) Odor | pungent |
| d) Melting point/freezing point | Melting point/range: 113 - 115 °C - lit. |
| e) Initial boiling point and boiling range | >= 160 °C at 1.013 hPa - OECD Test Guideline 103 - Decomposes below the boiling point. |
| f) Flammability (solid, gas) | The substance or mixture is a flammable solid with the category 1. - Test N.1: Test method for readily combustible solids |
| g) Upper/lower flammability or explosive limits | No data available |
| h) Flash point | 77 °C - closed cup |
| i) Autoignition temperature | No data available |
| j) Decomposition temperature | No data available |
| k) pH | 4 at 1 g/l at 20 °C
(External MSDS) |
| l) Viscosity | Viscosity, kinematic: No data available
Viscosity, dynamic: No data available |
| m) Water solubility | 14,7 g/l at 20 °C - OECD Test Guideline 105 |
| n) Partition coefficient: n-octanol/water | log Pow: 0,1 - 0,3 at 23 °C - Bioaccumulation is not expected. |
| o) Vapor pressure | 0,133 hPa at 25 °C |
| p) Density | 1,32 g/cm ³ at 20 °C |
| Relative density | 1,33 at 20 °C - OECD Test Guideline 109 |
| q) Relative vapor density | |
| r) Particle characteristics | No data available |
| s) Explosive properties | No data available |
| t) Oxidizing properties | none |

9.2 Other safety information

No data available





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

Violent reactions possible with:

Strong bases

strong reducing agents

Risk of ignition or formation of inflammable gases or vapours with:

Sulfides

combustible substances

hydrides

Exothermic reaction with:

Oxidizing agents

alkalines

Strong acids

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 130 mg/kg

Remarks: (RTECS)

Acute toxicity estimate Inhalation - 4 h - 0,51 mg/l - dust/mist

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Dermal: No data available

Skin corrosion/irritation

Skin - in vitro test

Result: Corrosive after 3 minutes to 1 hour of exposure - 60 min





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(OECD Test Guideline 431)

Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

Respiratory or skin sensitization

In Chemico Skin Sensitisation: Direct Peptide Reactivity Assay (DPRA) - In vitro study

Result: positive

(OECD Test Guideline 442C)

Germ cell mutagenicity

Suspected of causing genetic defects.

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 471

Result: positive

Test Type: In vivo micronucleus test

Species: Mouse

Application Route: Oral

Method: Mutagenicity (micronucleus test)

Result: positive

Remarks: (ECHA)

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. - Respiratory system

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: DK2625000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Damage to the eyes.

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

Stomach - Irregularities - Based on Human Evidence





SECTION 12: Ecological information

12.1 Toxicity

No data available

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna Straus (Water flea) - 0,13 mg/l - 48 h
(OECD Test Guideline 202)

Toxicity to algae static test EC50 - Desmodesmus subspicatus (green algae) - 1,5 mg/l - 72 h
(OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 28 d
Result: 56 % - Not rapidly biodegradable
(OECD Test Guideline 301A)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

No data available





SECTION 14: Transport information

14.1 UN number

ADR/RID: 2587

IMDG: 2587

IATA: 2587

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 Packaging group

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use**National legislation**

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

H2 ACUTE TOXIC
E1 ENVIRONMENTAL HAZARDS**Other regulations**

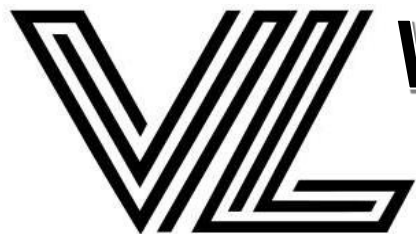
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.1 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.





SECTION 16: Other information

Full text of other abbreviations

These are abbreviations and acronyms commonly used in the field of chemical safety, regulation, and transportation:

1. ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
2. ADR - Agreement concerning the International Carriage of Dangerous Goods by Road
3. AIIC - Australian Inventory of Industrial Chemicals
4. ASTM - American Society for the Testing of Materials
5. bw - Body weight
6. CMR - Carcinogen, Mutagen, or Reproductive Toxicant
7. DIN - Standard of the German Institute for Standardization
8. DSL - Domestic Substances List (Canada)
9. ECx - Concentration associated with x% response
10. ELx - Loading rate associated with x% response
11. EmS - Emergency Schedule
12. ENCS - Existing and New Chemical Substances (Japan)
13. ErCx - Concentration associated with x% growth rate response
14. GHS - Globally Harmonized System
15. GLP - Good Laboratory Practice
16. IARC - International Agency for Research on Cancer
17. IATA - International Air Transport Association
18. IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
19. IC50 - Half maximal inhibitory concentration
20. ICAO - International Civil Aviation Organization
21. IECSC - Inventory of Existing Chemical Substances in China
22. IMDG - International Maritime Dangerous Goods
23. IMO - International Maritime Organization
24. ISHL - Industrial Safety and Health Law (Japan)
25. ISO - International Organization for Standardization
26. KECI - Korea Existing Chemicals Inventory
27. LC50 - Lethal Concentration to 50% of a test population
28. LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
29. MARPOL - International Convention for the Prevention of Pollution from Ships
30. n.o.s. - Not Otherwise Specified





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31. NO(A)EC - No Observed (Adverse) Effect Concentration
32. NO(A)EL - No Observed (Adverse) Effect Level
33. NOELR - No Observable Effect Loading Rate
34. NZIoC - New Zealand Inventory of Chemicals
35. OECD - Organization for Economic Co-operation and Development
36. OPPTS - Office of Chemical Safety and Pollution Prevention
37. PBT - Persistent, Bio accumulative, and Toxic substance
38. PICCS - Philippines Inventory of Chemicals and Chemical Substances
39. (Q)SAR - (Quantitative) Structure Activity Relationship
40. REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals
41. RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
42. SADT - Self-Accelerating Decomposition Temperature
43. SDS - Safety Data Sheet
44. TCSI - Taiwan Chemical Substance Inventory
45. TECI - Thailand Existing Chemicals Inventory
46. TSCA - Toxic Substances Control Act (United States)
47. UN - United Nations
48. UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods
49. vPvB - Very Persistent and Very Bio accumulative

Additional information

The provided information is considered accurate but is not intended to cover every aspect and should be regarded as a general reference. The content in this document is derived from our current understanding and is relevant to the product concerning the necessary safety measures.

