

**Section 1. Product and Company Identification**

Product Name 1,4-Benzoquinone
Product ID B1853
Chemical Name (Synonyms) Quinone; *p*-quinone; 1,4-Cyclohexadienedione
Supplier LKT Laboratories, Inc
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St. Paul, MN 55130 USA
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Emergency Phone # 1-800-424-9300

Section 2. Hazards Identification

GHS Classification Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

GHS Label elements including precautionary statements

Pictogram



Signal word Danger

Hazard and precautionary statements

Hazard statements

H301 + H331 - Toxic if swallowed or if inhaled.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

P261 - Avoid breathing dust, fumes, gas, mist, vapors, and spray.
P264 - Wash skin thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear eye protection/ face protection.
P280 - Wear protective gloves.
P301 + P310 + P330 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P311 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call POISON CENTER or doctor/ physician.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 - If skin irritation occurs: Get medical advice/ attention.
P337 + P313 - If eye irritation persists: Get medical advice/ attention.
P362 - Take off contaminated clothing and wash before reuse.
P391 - Collect spillage.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard: 2
Chronic health hazard: *
Flammability: 0
Physical hazard: 0

NFPA Rating

Health hazard: 2
Fire hazard: 2
Reactivity hazard: 0

Potential Health Effects

Inhalation - Acute toxicity. Toxic if inhaled. May cause respiratory irritation.
Skin - May be harmful if absorbed through skin. Causes skin irritation.
Eyes - Causes serious eye irritation.

Ingestion - Acute toxicity. Toxic if swallowed.

Section 3. Composition/Information on Ingredients

Substances	Ingredient: Title Compound	Percent: 100		
Formula	C ₆ H ₄ O ₂		Formula Wt.	108.09
CAS No.	106-51-4		EC No.	203-405-2

Section 4. First Aid Measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
Eye Contact	Flush eyes with plenty of water for at least 15 minutes and consult a physician.
Skin Contact	Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Section 5. Firefighting Measures

Flash Point	Not available.
Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.
Firefighting Procedures	Wear self-contained breathing apparatus for firefighting if necessary.
Unusual Fire Hazards	Carbon oxides.

Section 6. Accidental Release Measures

Personal Precautions	Wear respiratory protection. Avoid dust formation. Avoid breathing dust, vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods and materials for containment and cleanup	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Section 7. Handling and Storage

Handling	Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
Storage Conditions	Keep container tightly closed in a dry and well-ventilated place. Recommended storage temperature: +4°C
Hazardous Decomposition Products	Not available.
Other Remarks	Light sensitive.

Section 8. Exposure Controls/Personal Protection

Personal protective equipment EXPOSURE CONTROLS

Workplace control parameters: Quinone Time-Weighted Average, 0.1 parts per million, American Conference of Governmental Industrial Hygienists Threshold Limit Values, eye irritation and skin damage. 0.100000 parts per million USA Occupational Exposure Limits OSHA or Occupational Safety and Health Administration. 0.400000 mg/m³, OSHA, Table Z-1 Limits for Air contaminants. 0.100000 parts per million, USA, National Institute for Occupational Safety and Health or NIOSH Recommended. 0.400000 mg/m³ Exposure Limits.
Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

PERSONAL PROTECTION

Eye/face protection: Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection: 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. Full and splash contact - Material: Nitrile rubber, Minimum layer thickness: 0.11 mm, Break through time: 480 min., Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M).

Body protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9. Physical and Chemical Properties

Physical State	Solid.	Color	Greenish powder.
Boiling Point	Not available.	Volatility	Not available.
Melting Point	115.7°C	Density	Not available.
Solubility	Slightly soluble in water. Soluble in alcohol, ether or alkalis.	pH	Not available.
Flash Point	Not available.	Ignition temperature	Not available.
Lower explosion limit	Not available.	Autoignition temperature	Not available.
Upper explosion limit	Not available.	Vapor pressure	Not available.
Water solubility	Slightly soluble in water. Water solubility 1.11E+04 mg/L. Water temperature: 18°C	Odor	Not available.
Partition coefficient: n-octanol/water	Not available.	Odor Threshold	Not available.
Relative vapor density	4.33	Evaporation rate	Not available.

Section 10. Stability and Reactivity

Stability	Stable under recommended storage conditions.
Materials To Avoid	Reacts violently with: Strong oxidizing agents.
Hazardous Decomposition Products	Not available.

Possibility of hazardous reactions Not available.

Conditions to avoid Not available.

Section 11. Toxicological Information

Oral LD50 Rat - 130 mg/kg
Mouse - 25 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Tremor. Skin and Appendages: Other: Hair.

Inhalation LC50 Not available.

Dermal LD50 Not available.

Other information on acute toxicity Not available.

Reproductive Toxicity Not available.

Specific organ toxicity single exposure (GHS) Inhalation - May cause respiratory irritation.

Specific organ toxicity repeated exposure (GHS) Not available.

Teratogenicity Not available.

Potential Health Effects Inhalation - Acute toxicity. Toxic if inhaled. May cause respiratory irritation.
Skin - May be harmful if absorbed through skin. Causes skin irritation.
Eyes - Causes serious eye irritation.
Ingestion - Acute toxicity. Toxic if swallowed.

Carcinogenicity Carcinogenicity - Mouse, Skin Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, thorax, or Respiration: Tumors. Skin and Appendages: Other: Tumors.
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Quinone).
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Skin corrosion/irritation Not available.

Serious eye damage/irritation Not available.

Respiratory or skin sensitization Not available.

Germ cell mutagenicity Ames test, S. typhimurium, Histidine reversion (Ames).
Mouse, lymphocyte, DNA damage.
Mouse, lymphocyte, DNA inhibition.
Mouse, lymphocyte, Mutation in mammalian somatic cells.
Human, lymphocyte, Sister chromatid exchange.

Aspiration Hazard Not available.

Synergistic effects Not available.

Additional Information RTECS: DK2625000
Burning sensation, cough, wheezing, laryngitis
shortness of breath, headache, nausea,
vomiting, damage to the eyes.

Signs and symptoms of exposure Stomach, irregularities, based on human evidence.

Section 12. Ecological Information

Toxicity Toxicity to fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 0.04 - 0.125 mg/l - 96.0 h.
Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - 1-3.5 mg/l - 24 h.
Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (green algae) - 0.08 mg/l - 4 h.

Mobility in soil Not available.

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

conducted.

Persistence and degradability Not available.

Other adverse effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

Bioaccumulative potential Not available.

Section 13. Disposal Considerations

Waste Disposal Dispose of material according to all federal, state, and local regulations. Offer material to a licensed, professional waste disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Dispose of as unused product.

Section 14. Transport Information

DOT (US) UN number: 2587 Class: 6.1 Packing group: II
Proper shipping name: Benzoquinone
Reportable quantity (RQ): 10 lbs. Poison inhalation hazard: No

IATA UN number: 2587 Class: 6.1 Packing group: II
Proper shipping name: Benzoquinone

IMDG UN number: 2587 Class: 6.1 Packing group: II EMS No.: F-A, S-A
Proper shipping name: BENZOQUINONE
Marine pollutant: yes

Further Information

Section 15. Regulatory Information

Reach No.

SARA 302 Components SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
1,4 - Benzoquinone CAS No.: 106-51-4 Revision Date: 1993-04-24

SARA 311/312 Components Acute health hazard, chronic health hazard.

Massachusetts Right To Know Components No components are subject to the Massachusetts Right to Know Act.
1,4 - Benzoquinone CAS #: 106-51-4 Revision Date: 1993-04-24

Pennsylvania Right To Know Components 1,4 - Benzoquinone CAS #: 106-51-4 Revision Date: 1993-04-24

New Jersey Right To Know Components 1,4 - Benzoquinone CAS #: 106-51-4 Revision Date: 1993-04-24

California Prop 65 Components This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16. Other Information

Other information The information in this document is believed to be correct but is not necessarily complete. LKT does not guarantee the accuracy of the information. The burden of verifying the information in this document rests solely upon the user.

Updated 6/11/2020

For emergencies in the USA, call
CHEMTREC 800-424-9300