

PHOTOGRAPHERS' FORMULARY

FORMULARY UNIVERSAL CONCENTRATE DEVELOPER

Makes 20 liters of working solution

Formulary Universal Concentrate Developer is an economical hydroquinone-phenidone developer, which gives good contrast in films. The chemicals are used to prepare a stock solution which is diluted 1:19 for film.

This developer is also an excellent paper developer, providing neutral tones, deep blacks and a pleasing tonal gradation. The stock solutions are usable for 4 to 5 months after mixing; the working solutions are one shot. A 1liter kit is used to make 5 to 20 liters of working solution depending upon dilution used.

CHEMICALS CONTAINED IN THIS KIT:

| CHEMICAL | AMOUNT |
|--------------------------------|-----------|
| Sodium Sulfite | 110 grams |
| Hydroquinone | 31 grams |
| Potassium Carbonate, anhydrous | 100 grams |
| Phenidone | 1.3 grams |
| Potassium Bromide | 5 grams |
| Sodium Hydroxide | 2 grams |

CHEMICAL SAFETY:

All chemicals are dangerous and must be treated with respect. Please read the chemical warnings on each package. Please exercise extreme care when handling, and avoid skin or eye contact.

HYDROQUINONE: Hydroquinone is considered by the EPA to be hazardous and a skin sensitizer.

SODIUM HYDROXIDE: Although your kit contains only a small amount of solid Sodium Hydroxide, it must be treated with special care. Sodium Hydroxide, as a solid or in solution, is a dangerous chemical. It is a corrosive and when spilled on the skin, will cause a chemical burn. Its action is insidious because the burn occurs without pain. When working with Sodium Hydroxide wash your hands frequently and without soap. If you detect a soapy feeling while washing, Sodium Hydroxide is present. In such a case, wash thoroughly with soap and water.



Material Safety Data Sheet

Creation Date 20-Jan-2010

Revision Date 20-Jan-2010

Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Sodium sulfite anhydrous

Cat No. BP355-500 □ S430-3 □ S430-10 □ S430-500 □ S447-3 □ S447-500

Synonyms Disodium sulfite; Sulfurous acid, disodium salt (Crystalline/Powder/Certified ACS/Low Phosphate)

Recommended Use Laboratory chemicals

Company Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 703-527-3887

2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Contact with acids liberates toxic gas. May cause eye, skin, and respiratory tract irritation . May cause central nervous system effects.

Appearance Off-white

Physical State Solid

odor odorless

Target Organs Central nervous system (CNS)

Potential Health Effects

Acute Effects

Principle Routes of Exposure

Eyes

May cause irritation.

Skin

May cause irritation. May be harmful in contact with skin.

Inhalation

May cause irritation of respiratory tract. May be harmful if inhaled.

Ingestion

May be harmful if swallowed. May cause central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects

Mutagenic effects have occurred in experimental animals..

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

| Component | CAS-No | Weight % |
|----------------|-----------|----------|
| Sodium sulfite | 7757-83-7 | 97 |

4. FIRST AID MEASURES

| | |
|---------------------------|---|
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur. |
| Inhalation | Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur. |
| Ingestion | Do not induce vomiting. Obtain medical attention. |
| Notes to Physician | Treat symptomatically. |

5. FIRE-FIGHTING MEASURES

| | |
|---|--|
| Flash Point | No information available. |
| Method | No information available. |
| Autoignition Temperature | No information available. |
| Explosion Limits | |
| Upper | No data available |
| Lower | No data available |
| Suitable Extinguishing Media | Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.. |
| Unsuitable Extinguishing Media | No information available. |
| Hazardous Combustion Products | No information available. |
| Sensitivity to mechanical impact | No information available. |
| Sensitivity to static discharge | No information available. |

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

NFPA **Health** 1 **Flammability** 0 **Instability** 1 **Physical hazards** N/A

6. ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| Personal Precautions | Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes and clothing. |
| Environmental Precautions | Should not be released into the environment. |
| Methods for Containment and Clean Up | Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. |

7. HANDLING AND STORAGE

| | |
|-----------------|---|
| Handling | Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothing. Keep away from acids. |
| Storage | Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near acids. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|-----------------------------|---|
| Engineering Measures | Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. |
| Exposure Guidelines | This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies. |

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---------------------------|
| Physical State | Solid |
| Appearance | Off-white |
| odor | odorless |
| Odor Threshold | No information available. |
| pH | 8.5-10 5% aq.sol. |
| Vapor Pressure | No information available. |
| Vapor Density | No information available. |
| Viscosity | No information available. |
| Boiling Point/Range | No information available. |
| Melting Point/Range | >500°C / 932°F |
| Decomposition temperature <input type="checkbox"/> C | 500 |
| Flash Point | No information available. |
| Evaporation Rate | No information available. |
| Specific Gravity | 2.630 |
| Solubility | Partly soluble in water |
| log Pow | No data available |

9. PHYSICAL AND CHEMICAL PROPERTIES

Molecular Weight 126.04
Molecular Formula Na₂SO₃

10. STABILITY AND REACTIVITY

Stability Air sensitive. Moisture sensitive.

Conditions to Avoid Incompatible products. Excess heat. Exposure to air. Exposure to moisture.

Incompatible Materials Strong oxidizing agents, Acids

Hazardous Decomposition Products Sulfur oxides, Sodium oxides

Hazardous Polymerization Hazardous polymerization does not occur

Hazardous Reactions . Contact with acids liberates toxic gas.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|----------------|-------------------|-------------|---|
| Sodium sulfite | 820 mg/kg (Rat) | Not listed | 22 mg/L (Rat) 1 h 5.5 mg/L (Rat) 4 h |

Irritation No information available.

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product

Sensitization No information available.

Mutagenic Effects Mutagenic effects have occurred in experimental animals.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

Other Adverse Effects See actual entry in RTECS for complete information.

Endocrine Disruptor Information No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|----------------|------------------|-----------------|----------------------|--------------------|
| Sodium sulfite | Not listed | Not listed | EC50 = 770 mg/L 17 h | LC50 24 h 330 mg/L |

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available

Mobility

| Component | log Pow |
|----------------|---------|
| Sodium sulfite | -4 |

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

| Component | TSCA | DSL | NDSL | EINECS | ELINCS | NLP | PICCS | ENCS | AICS | CHINA | KECL |
|----------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------------|
| Sodium sulfite | X | X | - | 231-821-4 | - | | X | X | X | X | KE-31612 X |

Legend:**X - Listed****E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.****F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.****N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.****P - Indicates a commenced PMN substance****R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.****S - Indicates a substance that is identified in a proposed or final Significant New Use Rule****T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.****XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).****Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.****Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.****U.S. Federal Regulations****TSCA 12(b)** Not applicable**SARA 313**

Not applicable

SARA 311/312 Hazardous Categorization

| | |
|--|----|
| Acute Health Hazard | No |
| Chronic Health Hazard | No |
| Fire Hazard | No |
| Sudden Release of Pressure Hazard | No |
| Reactive Hazard | No |

Clean Water Act

Not applicable

Clean Air Act

Not applicable

OSHA

Not applicable

CERCLA

Not Applicable

California Proposition 65

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Not applicable

U.S. Department of Transportation

| | |
|-----------------------------|---|
| Reportable Quantity (RQ): | N |
| DOT Marine Pollutant | N |
| DOT Severe Marine Pollutant | N |

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Non-controlled

16. OTHER INFORMATION

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

Creation Date 20-Jan-2010

Print Date 20-Jan-2010

Revision Summary "****", and red text indicates revision

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS

SAFETY DATA SHEET

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

Product identifier

Product name: Eastman(TM) Hydroquinone, European Pharma Grade

Product No.: EAN 978227. 08992-0E, P08992E1, P08992E2, P08992E3

Synonyms, Trade Names: 08992-0E

Additional identification

Chemical name: 1,4-benzenediol
CAS-No.: 123-31-9

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

Identified uses: Chemical Intermediate, Inhibitor, Photographic processing chemical.

Uses advised against: None known.

Details of the supplier of the safety data sheet

Manufacturer / Supplier

Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

Emergency telephone number:

For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

SECTION 2: Hazards identification

Hazard Classification:

Health Hazards

| | |
|--|------------|
| Acute toxicity (Oral) | Category 4 |
| Serious eye damage | Category 1 |
| Skin sensitizer | Category 1 |
| Germ Cell Mutagenicity | Category 2 |
| Specific Target Organ Toxicity - Single Exposure (Dermal) | Category 2 |

OSHA Specified Hazards:

| | |
|------------------|--|
| Combustible dust | If converted to small particles during further processing, handling or by other means may form combustible dust concentrations in air. |
|------------------|--|

Warning label items including precautionary statement:

Pictogram:**Signal Words:**

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.
H371: May cause damage to organs.
If converted to small particles during further processing, handling or by other means may form combustible dust concentrations in air.

Precautionary Statement:**Prevention:**

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P272: Contaminated work clothing should not be allowed out of the workplace.

Response:

P309+P311: IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330: Rinse mouth.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
P363: Wash contaminated clothing before reuse.
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 or doctor/physician.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC):

None known.

SECTION 3: Composition/information on ingredients**Substances / Mixtures****General information:**

| Chemical name | Concentration | Additional identification | Notes |
|---------------|---------------|---------------------------|-------|
| hydroquinone | 100% | CAS-No.: 123-31-9 | # |

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

This substance has workplace exposure limit(s).

SECTION 4: First aid measures**Description of first aid measures**

Inhalation: Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

Skin contact: Immediately remove contaminated clothing and shoes and wash skin with soap and plenty of water. If skin irritation or an allergic skin reaction develops, get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion: Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: May irritate and cause redness and pain. Symptoms may be delayed.

Indication of any immediate medical attention and special treatment needed

Hazards: None known.

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

General Fire Hazards: Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures.

Extinguishing media

Suitable extinguishing media: Water spray. Dry chemical. Carbon Dioxide. Water spray. Carbon Dioxide. Dry chemical.

Unsuitable extinguishing media: None known. None known.

Special hazards arising from the substance or mixture: Powdered material may form explosive dust-air mixtures.

Advice for firefighters

Special fire fighting procedures: Minimize dust generation and accumulation.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures: Wear appropriate personal protective equipment.

Environmental Precautions: Do not release into the environment.

Methods and material for containment and cleaning up: Sweep up and place in a clearly labeled container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

Notification Procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

Precautions for safe handling: Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities: Keep container closed. Keep away from food, drink and animal feeding stuffs.

Specific end use(s): Inhibitor Chemical Intermediate Photographic processing chemical.

SECTION 8: Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Country specific exposure limits have not been established or are not applicable unless listed below.

| Chemical name | type | Exposure Limit Values | Source |
|---------------|--------|-----------------------|---|
| hydroquinone | TWA | 1 mg/m3 | US. ACGIH Threshold Limit Values (01 2010) |
| | PEL | 2 mg/m3 | US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006) |
| | ST ESL | 20 µg/m3 | US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2014) |
| | AN ESL | 2 µg/m3 | US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2014) |

Exposure controls

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information: Eye bath. Washing facilities. Safety shower.

Eye/face protection: Chemical goggles and face shield are recommended. Wear a full-face respirator, if needed.

Skin protection

Hand Protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information. Wash hands after contact.

Other: No data available.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene measures: Observe good industrial hygiene practices.

Environmental Controls: No data available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

| | |
|---|---------------------|
| Physical state: | solid |
| Form: | solid (crystal) |
| Color: | white |
| Odor: | Odorless |
| Odor Threshold: | No data available. |
| pH: | No data available. |
| Melting Point | 172.3 °C |
| Boiling Point: | 287 °C |
| Flash Point: | 165 °C (closed cup) |
| Evaporation Rate: | No data available. |
| Flammability (solid, gas): | not applicable |
| Flammability Limit - Upper (%)-: | No data available. |
| Flammability Limit - Lower (%)-: | No data available. |

| | |
|---|---|
| Vapor pressure: | 0.000032 hPa (25 °C) |
| Vapor density (air=1): | 3.8 |
| Specific Gravity: | 1.33 (15 °C) |
| Solubility(ies) | |
| Solubility in Water: | 72 g/l (25 °C) |
| Solubility (other): | No data available. |
| Partition coefficient (n-octanol/water): | log Pow: 0.59 |
| Autoignition Temperature: | 515 °C |
| Decomposition Temperature: | Thermal stability not tested. Low stability hazard expected at normal operating temperatures. |
| Dynamic viscosity: | not applicable |
| Kinematic viscosity: | not applicable |
| Explosive properties: | Not classified. |
| Oxidizing properties: | Not classified. |

SECTION 10: Stability and reactivity

| | |
|--|--|
| Reactivity: | None known. |
| Chemical Stability: | Stable |
| Possibility of Hazardous Reactions: | None known. |
| Conditions to Avoid: | Heat, sparks, flames. Light. |
| Incompatible Materials: | Strong oxidizing agents. Strong alkalis. |
| Hazardous Decomposition Products: | Carbon Dioxide. Carbon Monoxide. |

SECTION 11: Toxicological information

Information on likely routes of exposure

| | |
|----------------------|---|
| Inhalation: | None known. |
| Ingestion: | Harmful if swallowed. |
| Skin contact: | May cause an allergic skin reaction. May cause skin depigmentation. |
| Eye contact: | Causes serious eye damage. |

Information on toxicological effects

Oral

| | |
|--------------------------------|--------------------------------|
| Product: | No data available. |
| Specified substance(s): | |
| hydroquinone | Oral LD-50: (Rat): > 375 mg/kg |

Dermal

| | |
|-----------------|--------------------|
| Product: | No data available. |
|-----------------|--------------------|

Specified substance(s):
hydroquinone Dermal LD-50: (Rabbit): > 2,000 mg/kg

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Specified substance(s):
hydroquinone NOAEL (Rat, Oral Study, 90 d): 20 mg/kg
NOAEL (Rat, Dermal Study, 90 d): 73.9 mg/kg (highest dose tested)

Skin Corrosion/Irritation
Product: No data available.

Specified substance(s):
hydroquinone (Rabbit, 24 h): none

Serious Eye Damage/Eye Irritation
Product: No data available.

Specified substance(s):
hydroquinone (Human): corneal opacity

Respiratory or Skin Sensitization
Product: No data available.

Specified substance(s):
hydroquinone Skin Sensitization: (Mouse): sensitizing
Skin Sensitization: (Guinea Pig): Not a skin sensitizer.

Carcinogenicity
Product: No data available.

Toxicity to reproduction
Product: No data available.

Developmental toxicity
Product: No data available.

Germ Cell Mutagenicity

In vitro
Product: No data available.

Specified substance(s):
hydroquinone Mutagenicity - Bacterial: negative
Chromosomal aberration: negative
Chromosomal aberration: positive
Chromosomal aberration: negative
Mutagenicity - Mammalian: positive

In vivo**Product:** No data available.**Specified substance(s):**
hydroquinone Chromosomal aberration intraperitoneal injection (Mouse): positive
Chromosomal aberration oral: gavage (Rat): negative**Specific Target Organ Toxicity - Single Exposure****Product:** No data available.**Specific Target Organ Toxicity - Repeated Exposure****Product:** No data available.**Aspiration Hazard****Product:** No data available.**Other effects:** No data available.**SECTION 12: Ecological information****Ecotoxicity:****Acute hazards to the aquatic environment:****Fish****Product:** No data available.**Specified substance(s):**
hydroquinone LC-50 (Fish, 96 h): 0.638 mg/l**Aquatic Invertebrates****Product:** No data available.**Specified substance(s):**
hydroquinone EC-50 (daphnid, 48 h): 0.134 mg/l**Chronic hazards to the aquatic environment:****Fish****Product:** No data available.**Aquatic Invertebrates****Product:** No data available.**Specified substance(s):**
hydroquinone NOEC: (daphnid, 21 d): 0.0057 mg/l**Toxicity to Aquatic Plants****Product:** No data available.**Specified substance(s):**
hydroquinone EC-50 (Alga, 72 h): 0.33 mg/l
NOEC: (Alga, 72 h): 0.019 mg/l**Persistence and Degradability****Biodegradation**

Product: No data available.

Specified substance(s):
hydroquinone 70 % (14 d, Ready Biodegradability: Modified MITI Test (I)) Readily biodegradable

BOD/COD Ratio
Product: No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)
Product: Log Kow: 0.59 20 °C

Mobility in Soil: No data available.

Known or predicted distribution to environmental compartments
hydroquinone Log Koc: 0.97 - 1.7 (QSAR model)

Other Adverse Effects: No data available.

SECTION 13: Disposal considerations

Waste treatment methods

General information: No data available.

Disposal methods: Dispose of waste and residues in accordance with local authority requirements. Incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14: Transport information

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT

Class 9, Packing Group III when material is shipped in quantities in one package at or above the Reportable Quantity and when no other hazard class applies; otherwise, not regulated.

Reportable Quantity: 45.4 kg (hydroquinone)

Marine pollutant.: hydroquinone

Possible Shipping Description(s):

UN 3077 Environmentally hazardous substances, solid, n.o.s. (hydroquinone) 9 III

IMDG - International Maritime Dangerous Goods Code

Marine pollutant.: (hydroquinone)

Possible Shipping Description(s):

UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(hydroquinone) 9 III

IATA

Possible Shipping Description(s):

UN 3077 Environmentally hazardous substance, solid, n.o.s. (hydroquinone) 9 III

SECTION 15: Regulatory information

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

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS (Canada) Status: controlled

WHMIS (Canada) Hazard Classification: D/1/B, D/2/B

SARA 311-312 Hazard Classification(s):

immediate (acute) health hazard

delayed (chronic) health hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List

HYDROQUINONE

OSHA: hazardous

TSCA (US Toxic Substances Control Act): This product is listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): This product is listed on the DSL or otherwise complies with CEPA new substance notification requirements.

AICS / NICNAS (Australian Inventory of Chemical Substances and National Industrial Chemicals Notification and Assessment Scheme): This product is listed on AICS or otherwise complies with NICNAS.

MITI (Japanese Handbook of Existing and New Chemical Substances): This product is listed in the Handbook or has been approved in Japan by new substance notification.

ECL (Korean Toxic Substances Control Act): This product is listed on the Korean inventory or otherwise complies with the Korean Toxic Substances Control Act.

SECTION 16: Other information

HMIS® Hazard Ratings: Health - 2*, Flammability - 1, Chemical Reactivity - 0

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information: New SDS

Key literature references and sources for data: No data available.

Training information: No data available.

Issue Date: 05/16/2015

SDS No.:

Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

MSDS# 19290

Section 1 - Chemical Product and Company Identification

MSDS Name: Potassium carbonate anhydrous

Catalog Numbers: AC198040000, AC385310000, AC424080000, AC424081000, 19804-0010, 19804-0050, 42408-5000, BP365-500, P208-250LB, P208-3, P208-500

Synonyms: Dipotassium salt of carbonic acid; Pearl ash; Potash; Dipotassium carbonate.

Company Identification: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 201-796-7100

Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#: 584-08-7
Chemical Name: Potassium carbonate
%: >99
EINECS#: 209-529-3

Hazard Symbols: XN



Risk Phrases: 22 36/37/38

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Warning! Hygroscopic (absorbs moisture from the air). Harmful if swallowed. Causes eye, skin, and respiratory tract irritation. Target Organs: Respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation.
Skin: Causes skin irritation. May be harmful if absorbed through the skin.
Ingestion: Harmful if swallowed. May cause irritation of the digestive tract.
Inhalation: Causes respiratory tract irritation. May be harmful if inhaled.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical

device.

Notes to
Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition
Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits:
Lower: Not available

Explosion Limits:
Upper: Not available

NFPA Rating: health: 2; flammability: 0; instability: 1;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

| Chemical Name | ACGIH | NIOSH | OSHA - Final PELs |
|---------------------|-------------|-------------|-------------------|
| Potassium carbonate | none listed | none listed | none listed |

OSHA Vacated PELs: Potassium carbonate: None listed

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Color: white

Odor: odorless

pH: 11.6 (10% aq soln)

Vapor Pressure: Not available

Vapor Density: Not available

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: Not applicable.

Freezing/Melting Point: 891 deg C (1,635.80°F)

Decomposition Temperature: Not available

Solubility in water: Freely Soluble

Specific Gravity/Density: 2.43 @ 19°C

Molecular Formula: K₂CO₃

Molecular Weight: 138.21

Section 10 - Stability and Reactivity

Chemical Stability:

Hygroscopic: absorbs moisture or water from the air.

Conditions to Avoid:

Incompatible materials, dust generation, exposure to moist air or water.

Incompatibilities with Other Materials

Strong oxidizing agents, acids, chlorine trifluoride, magnesium.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide.

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 584-08-7: TS7750000

RTECS:

LD50/LC50: CAS# **584-08-7**: Oral, mouse: LD50 = 2570 mg/kg;
Oral, rat: LD50 = 1870 mg/kg;

Carcinogenicity: Potassium carbonate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Not regulated

Hazard Class:

UN Number:

Packing Group:

Canada TDG

Shipping Name: Not regulated as a hazardous material

Hazard Class:

UN Number:

Packing Group:

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN

Risk Phrases:

R 22 Harmful if swallowed.

R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face protection.

WGK (Water Danger/Protection)

CAS# 584-08-7: 1

Canada

CAS# 584-08-7 is listed on Canada's DSL List

Canadian WHMIS Classifications: D1B, D2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 584-08-7 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 584-08-7 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 4/27/1999

Revision #12 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.



TCI AMERICA

SAFETY DATA SHEET

Revision number: 2
Revision date: 10/06/2014

1. IDENTIFICATION

Product name: 1-Phenyl-3-pyrazolidone
Product code: P0153

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
TCI America
9211 N. Harborage Street
Portland, OR 97203 U.S.A.
Telephone:
+1-800-423-8616 / +1-503-283-1681
Fax:
+1-888-520-1075 / +1-503-283-1987
e-mail:
sales-US@TCIchemicals.com
www.TCIchemicals.com

Emergency telephone number:
Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
+1-503-286-7624
Transportation Emergencies:
Chemtrec 24-Hour
+1-800-424-9300 (U.S.A.)
+1-703-527-3887 (International)
Responsible department:
TCI America
Environmental Health Safety and Security
+1- 503-286-7624

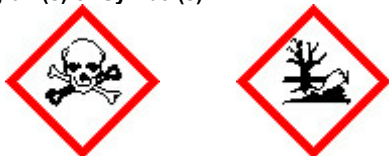
2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200: Acute Toxicity - Oral [Category 3]
Aquatic Hazard (Acute) [Category 2]
Aquatic Hazard (Long-Term) [Category 2]

Signal word: Danger!

Hazard Statement(s): Toxic if swallowed
Toxic to aquatic life
Toxic to aquatic life with long lasting effects

Pictogram(s) or Symbol(s):



Precautionary Statement(s):

- Prevention**
- Response**
- Storage**
- Disposal**

Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling.
If swallowed: Immediately call a poison center or doctor. Rinse mouth.
Store locked up.
Dispose of contents and container in accordance with US EPA guidelines for the classification and determination of hazardous waste listed in 40 CFR 261.3. (See Section 13)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Substance
Components: 1-Phenyl-3-pyrazolidone
Percent: >98.0%(T)
CAS Number: 92-43-3
Molecular Weight: 162.19
Chemical Formula: C₉H₁₀N₂O
Synonyms: Phenidone

4. FIRST-AID MEASURES

| | |
|----------------------|--|
| Inhalation: | Immediately call a poison center or doctor. Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. |
| Skin contact: | Immediately call a poison center or doctor. Remove and wash contaminated clothing before re-use. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. |
| Eye contact: | If this chemical contacts the eyes, immediately wash (irrigate) the eyes with large amounts of water, occasionally lifting the lower and upper eyelids. If eye irritation persists get medical advice/attention. Move victim to fresh air. Check for and remove any contact lenses. Keep victim warm and quiet. Treat symptomatically and supportively. Effects of exposure to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. |
| Ingestion: | Toxic if swallowed. If swallowed, seek medical advice immediately and show the container or label. Do not use mouth-to-mouth method if victim ingested the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Loosen tight clothing such as a collar, tie, belt or waistband. If a person vomits place them in the recovery position so that vomit will not reenter the mouth and throat. Rinse mouth. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. |

Symptoms/effects:

| | |
|-----------------|-------------------|
| Acute: | No data available |
| Delayed: | No data available |

| | |
|-------------------------------------|---|
| Immediate medical attention: | WARNING: It might be dangerous to the person providing aid to give mouth-to-mouth respiration, because the inhaled material is toxic. If breathing has stopped, perform artificial respiration. Use first aid treatment according to the nature of the injury. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. |
|-------------------------------------|---|

5. FIRE-FIGHTING MEASURES

| | |
|--------------------------------------|---|
| Suitable extinguishing media: | Dry chemical, CO ₂ or water spray. Consult with local fire authorities before attempting large scale fire fighting operations. |
|--------------------------------------|---|

Specific hazards arising from the chemical

| | |
|---------------------------------------|---|
| Hazardous combustion products: | These products include: Carbon oxides Nitrogen oxides |
| Other specific hazards: | Closed containers may explode from heat of a fire. |

Special precautions for fire-fighters:

Use water spray or fog; do not use straight streams. Dike fire-control water for later disposal; do not scatter the material. Containers may explode when heated. Move containers from fire area if you can do it without risk.

Special protective equipment for fire-fighters:

Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations. Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

6. ACCIDENTAL RELEASE MEASURES

| | |
|---------------------------------------|--|
| Personal precautions: | Avoid contact with skin, eyes, and clothing. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (Section 8). Warn unnecessary personnel to move away. Stop leak if you can do it without risk. Ensure adequate ventilation. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. |
| Personal protective equipment: | Safety glasses. Lab coat. Dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear protective gloves (nitrile). |
| Emergency procedures: | Prevent dust cloud. In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and exercise caution. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Warn personnel to move away. Prevent entry into sewers, basements or confined areas; dike if needed. |

Methods and materials for containment and cleaning up:

ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if without risk. Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Use clean non-sparking tools to collect absorbed material. Dike far ahead of spill; use dry sand to contain the flow of material. Ventilate the area.

Environmental precautions:

Keep away from living quarters. Environmental hazard. Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Water runoff can cause environmental damage. Prevent entry into sewers, basements or confined areas; dike if needed.

7. HANDLING AND STORAGE

| | |
|---------------------------------------|---|
| Precautions for safe handling: | Avoid inhalation of vapor or mist. Do not ingest. Avoid contact with skin and eyes. Good general ventilation should be sufficient to control airborne levels. Keep container dry. Handle and open container with care. Wear suitable protective clothing, gloves and eye/face protection. When using do not eat, drink, or smoke. Keep away from sources of ignition. |
| Conditions for safe storage: | Store locked up. Keep containers tightly closed in a cool, well-ventilated place. Keep away from incompatibles. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Avoid prolonged storage periods. |
| Storage incompatibilities: | Combustible substances, Store away from oxidizing agents |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No data available

Appropriate engineering controls:

Good general ventilation should be sufficient to control airborne levels. Ventilation is normally required when handling or using this product. Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance. Follow safe industrial engineering/laboratory practices when handling any chemical.

Personal protective equipment

| | |
|----------------------------------|---|
| Respiratory protection: | Dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. |
| Hand protection: | Wear protective gloves. |
| Eye protection: | Safety glasses. |
| Skin and body protection: | Lab coat. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-------------------------------|--------------------------------------|
| Physical state (20°C): | Solid |
| Form: | Crystal - Powder |
| Color: | White - Slightly pale reddish yellow |
| Odor: | No data available |
| Odor threshold: | No data available |

| | | | |
|--|-------------------|--|-------------------|
| Melting point/freezing point: | 122°C (252°F) | pH: | No data available |
| Boiling point/range: | No data available | Vapor pressure: | No data available |
| Decomposition temperature: | No data available | Vapor density: | No data available |
| Relative density: | No data available | Dynamic Viscosity: | No data available |
| Kinematic Viscosity: | No data available | | |
| Partition coefficient: n-octanol/water (log P_{ow}) | No data available | Evaporation rate: (Butyl Acetate = 1) | No data available |
| Flash point: | No data available | Autoignition temperature: | No data available |
| Flammability (solid, gas): | No data available | Flammability or explosive limits: | |
| | | Lower: | No data available |
| | | Upper: | No data available |

Solubility(ies):

10. STABILITY AND REACTIVITY

| | |
|--|--|
| Reactivity: | Not Available. |
| Chemical Stability: | Stable under recommended storage conditions. (See Section 7) |
| Possibility of Hazardous Reactions: | No hazardous reactivity has been reported. |
| Conditions to avoid: | Avoid excessive heat and light. |
| Incompatible materials: | Acids, Bases, Strong oxidizing agents |
| Hazardous Decomposition Products: | No data available |

11. TOXICOLOGICAL INFORMATION

RTECS Number: UQ8750000

Acute Toxicity:

ipr-rat LD50:200 mg/kg

orl-rat LD50:200 mg/kg

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:

No data available

IARC: No data available**NTP:** No data available**OSHA:** No data available**Reproductive toxicity:**

No data available

Routes of Exposure:

Inhalation, Eye contact, Ingestion.

Symptoms related to exposure:

Overexposure may result in serious illness or death.

Potential Health Effects:

No specific information available; skin and eye contact may result in irritation. May be harmful if inhaled or ingested.

Target organ(s):

No data available

12. ECOLOGICAL INFORMATION**Ecotoxicity**

| | |
|-------------------|-------------------|
| Fish: | No data available |
| Crustacea: | No data available |
| Algae: | No data available |

Persistence and degradability:

No data available

Bioaccumulative potential (BCF):

No data available

Mobility in soil:

No data available

Partition coefficient:

No data available

n-octanol/water (log P_{ow})**Soil adsorption (K_{oc}):**

No data available

Henry's Law:

No data available

constant (PaM³/mol)**13. DISPOSAL CONSIDERATIONS****Disposal of product:**

Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.

Disposal of container:

Dispose of as unused product. Do not re-use empty containers.

Other considerations:

Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION**DOT (US)****UN number:**
UN2811**Proper Shipping Name:**
Toxic solids, organic, n.o.s.**Class or Division:**
6.1 Toxic material.**Packing Group:**
III**IATA**

14. TRANSPORT INFORMATION

| | | | |
|-----------------------------|--|--|------------------------------|
| UN number: UN2811 | Proper Shipping Name: Toxic solid, oxidizing, n.o.s. | Class or Division: 6.1 Toxic material. | Packing Group: III |
|-----------------------------|--|--|------------------------------|

IMDG

| | | | |
|-----------------------------|--|--|------------------------------|
| UN number: UN2811 | Proper Shipping Name: Toxic solid, organic, n.o.s. | Class or Division: 6.1 Toxic material. | Packing Group: III |
|-----------------------------|--|--|------------------------------|

EmS number: F-A, S-A

15. REGULATORY INFORMATION**Toxic Substance Control Act (TSCA 8b.):**

This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations**CERCLA Hazardous substance and Reportable Quantity:**

| | |
|------------------|------------|
| SARA 313: | Not Listed |
| SARA 302: | Not Listed |

State Regulations**State Right-to-Know**

| | |
|-----------------------------------|------------|
| Massachusetts | Not Listed |
| New Jersey | Not Listed |
| Pennsylvania | Not Listed |
| California Proposition 65: | Not Listed |

Other Information**NFPA Rating:**

| | |
|----------------------|---|
| Health: | 2 |
| Flammability: | 0 |
| Instability: | 0 |

HMIS Classification:

| | |
|----------------------|---|
| Health: | 2 |
| Flammability: | 0 |
| Physical: | 0 |

International Inventories

| | |
|----------------------------|---|
| WHMIS hazard class: | D1B: Materials causing immediate and serious toxic effects. (Toxic) |
| EC-No: | 202-155-1 |

16. OTHER INFORMATION

Revision date: 10/06/2014

Revision number: 2

TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.

Potassium Bromide, Crystal Purified/Photo

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Potassium Bromide, Crystal Purified/Photo

Synonyms/Generic Names: Bromide salt of Potassium; Tripotassium tribromide

Product Number: 4195

Product Use: Industrial, Manufacturing or Laboratory use

Manufacturer: Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI. 53925

For More Information Call: 920-623-2140 (Monday-Friday 8:00-4:30)

In Case of Emergency Call: CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

2. HAZARDS IDENTIFICATION

OSHA Hazards: Target Organ Effect, Irritant, Mutagen

Target Organs: Central nervous system, Eyes

Signal Word: Warning

Pictograms:



GHS Classification:

| | |
|--|-------------|
| Acute toxicity, Oral | Category 5 |
| Skin irritation | Category 2 |
| Eye irritation | Category 2A |
| Specific target organ toxicity - single exposure | Category 3 |
| Acute aquatic toxicity | Category 3 |

GHS Label Elements, including precautionary statements:

Hazard Statements:

| | |
|------|-----------------------------------|
| H303 | May be harmful if swallowed. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H335 | May cause respiratory irritation. |
| H402 | Harmful to aquatic life. |

Precautionary Statements:

| | |
|----------------|--|
| P261 | Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |

Potential Health Effects

| | |
|-------------------|--|
| Eyes | Causes eye irritation. |
| Inhalation | May be harmful if inhaled. Causes respiratory tract irritation. |
| Skin | May be harmful if absorbed through skin. Causes skin irritation. |
| Ingestion | May be harmful if swallowed. |

NFPA Ratings

| | |
|------------------------|---------------|
| Health | 1 |
| Flammability | 0 |
| Reactivity | 0 |
| Specific hazard | Not Available |

HMIS Ratings

| | |
|-------------------|---|
| Health | 1 |
| Fire | 0 |
| Reactivity | 0 |
| Personal | E |

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | Weight % | CAS □ | EINECS□/ ELINCS□ | Formula | Molecular Weight |
|-------------------|----------|-----------|---------------------|---------|------------------|
| Potassium Bromide | 100 | 7758-02-3 | 231830-3 | KBr | 119.00 g/mol |

4. FIRST-AID MEASURES

| | |
|-------------------|--|
| Eyes | In case of eye contact, rinse with plenty of water and seek medical attention. |
| Inhalation | Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention. |
| Skin | Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention. |
| Ingestion | Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention. |

5. FIRE-FIGHTING MEASURES

| | |
|--|--|
| Suitable (and unsuitable) extinguishing media | Product is not flammable. Use appropriate media for adjacent fire. Cool containers with water. |
| Special protective equipment and precautions for firefighters | Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots. |
| Specific hazards arising from the chemical | Emits toxic fumes (hydrogen bromide gas, potassium oxides) under fire conditions. (See also Stability and Reactivity section). |

6. ACCIDENTAL RELEASE MEASURES

| | |
|--|--|
| Personal precautions, protective equipment and emergency procedures | See section 8 for recommendations on the use of personal protective equipment. |
| Environmental precautions | Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements. |
| Methods and materials for containment and cleaning up | Prevent spillage from entering drains. Pick up and arrange disposal without creating dust. Sweep up and place in suitable, closed containers for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations. |

7. HANDLING AND STORAGE

Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of dusts.

Conditions for safe storage, including any incompatibilities

Store in cool, dry well ventilated area. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls: Contains no substances with occupational exposure limit values.

Personal Protection

| | |
|-------------------|---|
| Eyes | Wear chemical safety glasses or goggles. |
| Inhalation | Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator. |
| Skin | Wear nitrile or rubber gloves, apron or lab coat. |
| Other | Not Available |

Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|--------------------------|
| Appearance (physical state, color, etc.) | White crystalline solid. |
| Odor | Odorless. |
| Odor threshold | Not Available |
| pH | Not Available |
| Melting point/freezing point | 730°C (1346°F) |
| Initial boiling point and boiling range | 1435°C (2615°F) |
| Flash point | Not Flammable |
| Evaporation rate | Not Available |
| Flammability (solid, gas) | Not Flammable |
| Upper/lower flammability or explosive limit | Not Explosive |
| Vapor pressure | Not Available |

| | |
|--|---|
| Vapor density | Not Available |
| Density | 2.75 (Water = 1) |
| Solubility (ies) | Easily soluble in cold water, hot water. Slightly soluble in diethyl ether. Insoluble in acetate. |
| Partition coefficient: n-octanol/water | Not Available |
| Auto-ignition temperature | Not Available |
| Decomposition temperature | Not Available |

10. STABILITY AND REACTIVITY

| | |
|---|--|
| Chemical Stability | Stable |
| Possibility of Hazardous Reactions | Will not occur. |
| Conditions to Avoid | Moisture. |
| Incompatible Materials | Strong oxidizing agents, strong acids, heavy metal salts, aluminum, potassium. |
| Hazardous Decomposition Products | Hydrogen bromide gas, potassium oxides. |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

| | |
|--------------------|-------------------------------|
| Skin | Not Available |
| Eyes | Not Available |
| Respiratory | Not Available |
| Ingestion | LD50 Oral - rat - 3,070 mg/kg |

Carcinogenicity

| | |
|--------------|--|
| IARC | No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| ACGIH | No components 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 components 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 components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. |

Signs □ Symptoms of Exposure

| | |
|--------------------|---|
| Skin | Irritation, redness, itchiness. |
| Eyes | Irritation, redness, watering eyes, itchiness, enlarge pupils with subnormal reaction to light, miosis, diplopia. |
| Respiratory | Irritation, coughing, wheezing. |
| Ingestion | Irritation, nausea, vomiting, diarrhea. |

| | |
|---------------------------------------|------------------------------|
| Chronic Toxicity | Not Available |
| Teratogenicity | Not Available |
| Mutagenicity | May affect genetic material. |
| Embryotoxicity | Not Available |
| Specific Target Organ Toxicity | Not Available |
| Reproductive Toxicity | Not Available |
| Respiratory/Skin Sensitization | Not Available |

12. ECOLOGICAL INFORMATION

Ecotoxicity

| | |
|-----------------------------|--|
| Aquatic Vertebrate | LC50 - Pimephales promelas (fathead minnow) - > 30 mg/l - 96 h |
| Aquatic Invertebrate | Not Available |
| Terrestrial | Not Available |

| | |
|--------------------------------------|--------------------------|
| Persistence and Degradability | Not Available |
| Bioaccumulative Potential | Not Available |
| Mobility in Soil | Not Available |
| PBT and vPvB Assessment | Not Available |
| Other Adverse Effects | Harmful to aquatic life. |

13. DISPOSAL CONSIDERATIONS

| | |
|---------------------------|--|
| Waste Residues | Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container. |
| Product Containers | Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container. |

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORTATION INFORMATION

| | |
|------------------|---------------------|
| US DOT | Not Dangerous Goods |
| TDG | Not Dangerous Goods |
| IMDG | Not Dangerous Goods |
| Marine Pollutant | No |
| IATA/ICAO | Not Dangerous Goods |

15. REGULATORY INFORMATION

| | |
|---------------------------|---|
| TSCA Inventory Status | All ingredients are listed on the TSCA inventory. |
| DSCL (EEC) | All ingredients are listed on the DSCL inventory. |
| California Proposition 65 | Not Listed |
| SARA 302 | Not Listed |
| SARA 304 | Not Listed |
| SARA 311 | Potassium bromide |
| SARA 312 | Potassium bromide |
| SARA 313 | Not Listed |
| WHMIS Canada | CLASS D-2B: Material causing other toxic effects (TOXIC). |

16. OTHER INFORMATION

| Revision | Date |
|------------|------------|
| Revision 1 | 08-06-2012 |
| | |
| | |

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Product Name : **SODIUM HYDROXIDE**

Classified as hazardous

1. Identification

| | | |
|--|---|---------------------|
| GHS Product Identifier | SODIUM HYDROXIDE | |
| Company Name | CHEM-SUPPLY PTY LTD (ABN 19 008 264 211) | |
| Address | 38 - 50 Bedford Street GILLMAN SA 5013 Australia | |
| Telephone/Fax Number | Tel: (08) 8440-2000 Fax: (08) 8440-2001 | |
| Recommended use of the chemical and restrictions on use | Acid neutralisation, chemical manufacture, rayon, cellophane, petroleum refining, pulp and paper, aluminium, detergents, soap, cellulose, textile processing, vegetable oil refining, plastics, explosives, dyestuffs, paint and paint remover, metal cleaning, etching and electroplating, reclaiming rubber, regenerating ion exchange resins, organic fusions, peeling of fruits and vegetables in food industry, cleaning products, food additive and laboratory reagent. | |
| Other Names | Name | Product Code |
| | SODIUM HYDROXIDE Mini Pearl LR | SL000 |
| | SODIUM HYDROXIDE Pellet AR | SA178 |
| | SODIUM HYDROXIDE Mini Pearl AR | SA000 |
| | SODIUM HYDROXIDE Pellet LR | SL178 |
| | Caustic soda, Sodium hydrate, Lye | |
| | SODIUM HYDROXIDE Mini Pearl TG | ST000 |
| Other Information | EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday. | |

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

| | |
|--|---|
| GHS classification of the substance/mixture | Corrosive to Metals: Category 1 Skin Corrosion/Irritation: Category 1A |
| Signal Word (s) | DANGER |
| Hazard Statement (s) | H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. |
| Pictogram (s) | Corrosion |



| | |
|---|---|
| Precautionary statement – Prevention | P234 Keep only in original container. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection. |
| Precautionary statement – Response | P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting. P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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 or doctor/physician. |



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Precautionary statement – Storage P363 Wash contaminated clothing before reuse.
Store locked up.
Store in corrosive resistant/... container with a resistant inner liner.

3. Composition/information on ingredients

| | | | | | |
|----------------------------------|------------------|------------|-------------------|----------------------|--------------------|
| Chemical Characterization | Solid | | | | |
| Ingredients | <u>Name</u> | <u>CAS</u> | <u>Proportion</u> | <u>Hazard Symbol</u> | <u>Risk Phrase</u> |
| | Sodium hydroxide | 1310-73-2 | 100 % | C | R35 |

4. First-aid measures

Ingestion Rinse mouth thoroughly with water immediately. Give water to drink. DO NOT induce vomiting. If vomiting occurs, have victim lean forward to reduce risk of aspiration. If vomiting occurs give further water to achieve effective dilution. Seek immediate medical assistance.

Skin Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. Seek urgent medical assistance.
Cover skin with an emollient.

Eye contact Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.
If available, a neutral saline solution may be used to flush the contaminated eye/s an additional 30 minutes.

First Aid Facilities Maintain eyewash fountain and safety shower in work area.

Advice to Doctor Treat symptomatically as for strong alkalis. Consult Poisons Information Centre.
In severe cases, where excessive amounts of sodium hydroxide has been ingested, endoscopy should be performed to determine the severity of the oesophageal burns.

Other Information For advice, contact the National Poisons Information Centre (Phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products May liberate toxic fumes in fire (sodium oxide).

Specific Methods Use extinguishing media most appropriate for the surrounding fire.
Small fire: Use dry chemical, CO2 or water spray.
Large fire: Use water spray, fog or foam - Do NOT use water jets.
If safe to do so, move undamaged containers from the fire area. Cool containers with flooding quantities of water until well after the fire is out. Avoid getting water inside the containers.

Specific hazards arising from the chemical Material does not burn. Fire or heat will produce irritating, poisonous and/or corrosive gases.

Hazchem Code 2W

Precautions in connection with Fire Wear SCBA and chemical splash suit. Fully encapsulating, gas-tight suits should be worn for maximum protection. Structural firefighter's uniform is NOT effective for these materials.

6. Accidental release measures

Personal Precautions Do not allow hot material to contact water or other liquids. Avoid contact with skin. Avoid contact with eyes.

Personal Protection Wear protective clothing specified for normal operations (see Section 8)

Clean-up Methods - Small Spillages Sweep up (avoid generating dust) and remove to a suitable, clearly labelled container for disposal in accordance with local regulations.

Clean-up Methods - Large Spillages Seek expert advice on handling and disposal.

Environmental Precautions Avoid release to the environment.

7. Handling and storage

Precautions for Safe Handling Avoid generation or accumulation of dusts. Contaminated clothing should be removed and washed before reuse. Application of skin-protective barrier cream is recommended. Wash hands and face thoroughly after working with material. Use in well ventilated areas away from all ignition sources. In case of insufficient ventilation, wear suitable respiratory equipment. When diluting or preparing solution,



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Product Name : **SODIUM HYDROXIDE**

Classified as hazardous

| | |
|---|--|
| Conditions for safe storage, including any incompatibilities | add caustic to water in small amounts to avoid boiling and splattering. Store in a cool,dry place. Store away from acids. Keep containers securely sealed and protected against physical damage. |
| Corrosiveness | Corrosive to aluminum, tin, zinc. Corrosive to steel at elevated temperatures. |
| Storage Regulations | Refer Australian Standard AS 3780 - 1994 'The Storage and Handling of Corrosive Substances'. |
| Other Information | Containers made of nickel alloys are preferred. Steel containers are acceptable if temperatures are not elevated. |

8. Exposure controls/personal protection

| Occupational exposure limit values | Name | STEL | | TWA | | Footnote |
|---|---|-------|-----|-------|-----|-----------------|
| | | mg/m3 | ppm | mg/m3 | ppm | |
| | Sodium hydroxide | | | 2 | | Peak limitation |
| Other Exposure Information | A time weighted average (TWA) has been established for Sodium hydroxide (Safe Work Australia) of 2 mg/m3. The corresponding STEL level is 2 mg/m3 - Peak Limitation - a ceiling concentration which should not be exceeded over a measurement period which should be as short as possible but not exceeding 15 minutes. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. In industrial situations maintain the concentrations values below the TWA. This may be achieved by | | | | | |
| Appropriate engineering controls | process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. | | | | | |
| Respiratory Protection | Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. | | | | | |
| Eye Protection | The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336. | | | | | |
| Hand Protection | Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste. Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Rubber or plastic gloves. | | | | | |
| Personal Protective Equipment | Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken. | | | | | |
| Footwear | Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use. | | | | | |
| Body Protection | Clean clothing or protective clothing should be worn, preferably with and apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals. | | | | | |
| Hygiene Measures | Do not eat, drink or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping. | | | | | |

9. Physical and chemical properties

| | |
|---------------------------------------|--|
| Form | Solid |
| Appearance | White, deliquescent flakes, pellets or minipeal. |
| Odour | Odourless. |
| Melting Point | 318 - 323 °C |
| Boiling Point | 1390 °C @ 760 mm Hg |
| Solubility in Water | Soluble. |
| Solubility in Organic Solvents | Soluble in alcohol and glycerol. Insoluble in acetone and ether. |



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| Specific Gravity | 2.130 @ 20 °C |
| pH | 12 (0.05% soln); 13 (1% soln); 14 (5% soln) |
| Odour Threshold | Odourless. |
| Flammability | Non-combustible. |
| Molecular Weight | 40.01 |
| Other Information | Absorbs water and carbon dioxide from the air. |

10. Stability and reactivity

| | |
|---|--|
| Chemical Stability | Stable under normal use conditons. Hygroscopic Slowly absorbs moisture from air, reacting with carbon dioxide and forming sodium carbonate. |
| Conditions to Avoid | Exposure to moisture. Exposure to air. Dust generation. Incompatibles. |
| Incompatible Materials | Strong acids, ally alcohol, ally chloride, phophorous, metals (aluminium, magnesium, tin, zinc), nitro compounds (nitroethane, nitromethane, nitroparaggins, nitropropane) and chloro organic compounds, organic halogen compounds (trichloroethylene), water. |
| Hazardous Decomposition Products | Sodium oxide. |
| Possibility of hazardous reactions | May react violently with strong acids. In contact with water, reaction may generate enough heat to ignite combustible materials. In contact with metals, reaction may produce flammable and explosive hydrogen gas. May react with organohalogen compounds to form spontaneously combustible compounds. May react explosively in contact with nitro and chloro organic compounds. May form explosive products with ammonia plus silver nitrate, benzene and benzene sulfonyl chloride, tetrahydrofuran, sodium tetrahydroborate, and trichlorophenol sodium salt plus methyl alcohol plus tichlorobenzene plus heat. |
| Hazardous Polymerization | Will not occur. |

11. Toxicological Information

| | |
|------------------------|--|
| Ingestion | Corrosive. Swallowing may cause severe burns of mouth, throat, and stomach. Severe scarring of tissue and death may result. Similar symptoms may be experienced as for inhalation with, severe pain, severe scarring of tissue, diarrhea, bleeding, vomiting, fall in blood pressure, collapse and death. Damage may appear days after exposure. Risk of perforation in the oesophagus and stomach. |
| Inhalation | Severe irritant. Effects from inhalation of dust or mist vary from mild irritation to serious damage or burns of the mucous membranes of the upper respiratory tract, depending on severity of exposure. Symptoms may include coughing, wheezing, laryngitis, shortness of breath, nausea, vomiging, sneezing, sore throat or runny nose. Severe chemical pneumonitis and pulmonary edema may occur. |
| Skin | Corrosive. Contact with skin causes severe burns and scarring. Can penetrate deeply. Burns are not immediately painful, onset of pain and irritation may be minutes to hours. |
| Eye | Corrosive. Causes severe burns. Can penetrate deeply. In severe cases, ulceration, permanent impairment of vision and permanent blindness may occur. |
| Carcinogenicity | Not listed in the IARC Monographs. |
| Chronic Effects | Prolongecd contact with dilute solution or dust has destructive effects upon tissue. |
| Mutagenicity | No evidence of mutagenic properties. |

12. Ecological information

| | |
|--------------------------------------|---|
| Ecotoxicity | Toxic for aquatic organisms. Harmful effect due to pH shift. |
| Persistence and degradability | Methods for the determination of biodegradability are not applicable to inorganic substances. |
| Acute Toxicity - Fish | LC50 Gambusia affins (mosquito fish) - 125mg/L - 96 h. |
| Acute Toxicity - Daphnia | EC50 (Daphina magna): 76 mg/l/24h. |

13. Disposal considerations

| | |
|--------------------------------|---|
| Disposal Considerations | Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations. |
|--------------------------------|---|

14. Transport information



| | | | |
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| | |
|-----------------------------------|---|
| Transport Information | Dangerous goods of Class 8 (Corrosive) are incompatible in a placard load with any of the following: Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids, Class 7; and are incompatible with food and food packaging in any quantity. Not to be loaded on the same vehicle with strong acids. |
| U.N. Number | 1823 |
| UN proper shipping name | SODIUM HYDROXIDE, SOLID |
| Transport hazard class(es) | 8 |
| Hazchem Code | 2W |
| Packaging Method | 3.8.8 |
| Packing Group | II |
| EPG Number | 8A1 |
| IERG Number | 37 |

15. Regulatory information

| | |
|-------------------------------|---|
| Regulatory Information | Listed in the Australian Inventory of Chemical Substances (AICS). |
| Poisons Schedule | S6 |

16. Other Information

| | |
|--|--|
| Date of preparation or last revision of SDS | September 2009. |
| Literature References | 'Standard for the Uniform Scheduling of Medicines and Poisons No. 4', Commonwealth of Australia, June 2013. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. 'Labelling of Hazardous Workplace Chemicals, Code of Practice' Safe Work Australia. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)]'. Safe Work Australia, 'Hazardous Substances Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]'. |
| Contact Person/Point | Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Chem-Supply accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives. |
| Empirical Formula & Structural Formula | NaOH ...End Of MSDS... |

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