

PHOTOGRAPHERS' FORMULARY

FORMULARY SUBSTITUTE FOR D-19

This is a published formula originally designed for use with x-ray materials and is now recognized as an excellent developer for aero films and plates when high contrast is desired. D-19 Film Developer is a high-contrast developer used primarily for scientific applications with spectroscopic films and plates, high resolution plates and films like Tech Pan and high speed Infrared.

D-19 provides higher than normal contrast and speed, higher than average graininess, high capacity, clean working and fast acting.

CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the warning label on each package.

METOL: Some individuals become sensitized (develop allergic symptoms or rashes) when using metol. If this should occur, discontinue use AND consult a physician.

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

The user assumes all risks upon accepting these chemicals. IF FOR ANY REASON YOU DO NOT WISH TO ASSUME ALL RISKS, PLEASE RETURN THE CHEMICALS WITHIN 30 DAYS FOR A FULL REFUND.

MIXING THE WORKING SOLUTION:

You will need a one-liter plastic storage container and a larger glass or plastic mixing container.

CHEMICALS	AMOUNTS	
Distilled Water (48C/125F)	500 ml	2500 ml
Metol	2 grams	8 grams
Sodium Sulfite	90 grams	360 grams
Hydroquinone	8 grams	32 grams
Sodium Carbonate (monohydrate)	52.5 grams	210 grams
Potassium Bromide	5 grams	20 grams
Cold water to make	1 liter	4000 ml

Dissolve all chemicals in the order given. Place the warm water in the mixing container and add a pinch of the sodium sulfite. (a small amount of sodium sulfite inhibits the initial oxidation of the metol. If more is added at this point, the metol will not dissolve). Add the metol and stir the solution to dissolve the solid. It is important that all of the metol is dissolved before the remaining sulfite is added. Add the sodium sulfite and stir to dissolve the solid. Add the rest of the chemicals in order, stirring to dissolve each one before adding the next chemical. Finally, add cold water to bring the total volume up to 1000 ml. or 4000 ml (depending on the kit you have) stir the solution thoroughly.

Metol and Hydroquinone, in these proportions, produce very high contrast.

USING THE DEVELOPER:

This developer is recommended for use at from 65 F (18 C) to 70 F (21 C) best results will be obtained within this range. However, acceptable results will be obtained at somewhat higher and lower temperatures.

These are recommended starting times based on undiluted developer. Determine correct time and temperature using test strips.

- 60 F for 12 minutes 65 F for 10 minutes 68 F for 9 minutes
- 70 F for 8 1/2 minutes 75 F for 7 minutes

Stop, fix and wash in the usual manner.

SAFETY DATA SHEET

1 IDENTIFICATION

Product Name	Metol
Recommended use & restriction on use	
Recommended use	Industrial, Manufacturing or Laboratory use
Restrictions on use	Not known
Supplier:	
Company name	Canton Chem Inc.
Address	6310 Kerne Ct Clarksville, MD 21029
Telephone	410-531-5671
Fax	410-531-5736
Email	info@cantonchem.com
Emergency telephone number	800-255-3924 (24 hr)
Contact Name:	Chem-Tel, Inc.

2 HAZARD(S) IDENTIFICATION

Statement of Hazard	Irritant
Chronic Health Hazards	Not Available
Acute Health Hazard	Irritant to eyes, skin, mucous membranes and respiratory system. May be harmful by ingestion inhalation or skin absorption
HMIS Rating:	H:0 F:0 P:0

To the best of our knowledge, the toxicological properties of this chemical have not been thoroughly investigated. Use appropriate procedures and precautions to prevent or minimize exposure.

Label Elements

Hazard Symbol



Signal Word

Warning

Hazard Statement

- Harmful if swallowed
- Harmful in contact with skin.
- May cause allergic skin reaction.
- Causes serious eye irritation.
- Harmful if inhaled.

- May cause respiratory irritation.
- Causes damage to organs through prolonged or repeated exposure.
- Very toxic to aquatic life with long lasting effects.

Precautionary Statement

- Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- IF ON SKIN: Wash with plenty of soap and water.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If skin irritation occurs: Get medical advice/ attention.

3 **COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical identity	CAS Number	Content in percent (%)*
Metol	55-55-0	100%

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

4 **FIRST-AID MEASURES**

Ingestion	Do not induce vomiting. Seek medical attention.
Inhalation	Move to a fresh air environment. Contact a physician if breathing becomes difficult.
Skin contact	Wash skin with soap and water. If irritation persists, seek medical attention.
Eye contact	Flush eyes with large amounts of water for fifteen minutes. Separate eyelids with fingers. If irritation persists, seek medical attention.

5 FIRE-FIGHTING MEASURES

Flash Point:	Not Available
Explosion Limits:	Lower: Not Available Upper: Not Available
Auto Ignition Temperature:	Not Available
Extinguishing Media:	Carbon dioxide, dry chemical powder, alcohol-resistant foam or water spray.
Protective Equipment:	Wear self-contained respirator and fully protective impervious suit.
Specific Hazards:	May emit hazardous fumes under fire conditions.

6 ACCIDENTAL RELEASE MEASURES

Personal Protection:	Wear a self-contained breathing apparatus, rubber boots and gloves, and disposable coveralls. Dispose of coveralls after use. Keep unprotected persons away.
Environmental Precautions	Keep spills out of sewers and bodies of water. Dike and contain the spill with inert material. Absorb on sand, vermiculite or diatomite. Transfer material to a container for disposal or recovery. Ventilate area and wash spill site after material pickup is complete.

7 HANDLING AND STORAGE

Handling	Avoid breathing dust, vapor, mist or gas. Avoid contact with skin and eyes. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Open and handle container with care. Keep ignition sources away.
Storage:	Store in a tightly closed container in a dry, well ventilated place.
Sensitivities:	Not Available

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes:	Wear appropriate protective eyeglass or chemical safety goggles. Make sure that there is an eyewash facility in your vicinity.
Skin:	Wear impervious gloves and protective clothing.
Respiratory:	Use a NIOSH approved respirator when exposure

limits are exceeded or if irritation or other symptoms are experienced.

Exposure Limits:

Country	Source	Type	Value
USA	ACGIH	TWA	Not Available
USA	OSHA	STEL	Not Available
USA	OSHA	PEL	Not Available

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Solid
Form	Powder
Color:	White
Odor	Not Available
Odor threshold	Not Available
pH	3.4 to 3.7
Melting point/freezing point	260 °C
Initial boiling point and boiling range:	Not Available
Flash Point	Not Available
Evaporation rate	Not Available
Flammability (solid, gas):	Not Available
Upper/lower limit on flammability or explosive limits	Not Available
Flammability limit - upper (%):	Not Available
Flammability limit - lower (%):	Not Available
Explosive limit - upper (%):	Not Available
Explosive limit - lower (%):	Not Available
Vapor pressure	Not Available
Vapor density	Not Available
Relative density	Not Available
Solubility(ies)	
Solubility in water:	Clear in 5% distilled water solution
Solubility (other):	Not Available
Partition coefficient (n-octanol/water):	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available
Viscosity	Not Available
Other information	
Molecular weight	344.38

10 STABILITY AND REACTIVITY

Stability	Stable under normal temperatures and pressures.
Conditions to Avoid	Heat, Flame, Sparks, other ignition sources
Incompatible	Strong oxidizing agents
Hazardous Decomposition products	Carbon oxides, Nitrogen oxides, Sulfur oxides

11 TOXICOLOGICAL INFORMATION

RTECS Reference:	SL8650000
Target Organs:	Not Available
Toxicity Data:	Not Available
Skin corrosion/irritation:	Not Available
Serious eye damage/irritation:	Not Available
Carcinogenicity:	Not Available

12 ECOLOGICAL INFORMATION

Very Toxic to aquatic organisms: May cause long-term adverse effects in the aquatic environment.

13 DISPOSAL CONSIDERATIONS

Disposal instructions: Contact a licensed professional waste disposal service. Dispose in a manner consistent with federal, state and local environmental regulations

14 TRANSPORT INFORMATION

DOT	Not Regulated
IMDG	Not Regulated
IATA	Not Regulated

15 REGULATORY INFORMATION

United States:

Toxic Substance Control Act (TSCA):	Listed
Superfund Amendments and Reauthorization Act (SARA 302):	Not listed
Superfund Amendments and Reauthorization Act (SARA 311/312):	Not listed
Superfund Amendments and Reauthorization Act (SARA 313):	Not listed

European Union:

European Inventory of Existing Chemical Substances (EINECS):	No. 200-237-1
Hazard Codes:	Xn,N
Risk Statements:	22-43-48/22-50/53
Safety Statements:	36/37-46-60-61

Canada

Canadian Domestic Substances List (DSL):	Listed
Canadian Non-Domestic Substances List (NDSL):	Not listed

16 **OTHER INFORMATION**

Revision information	Version: 1.1 Revision Date: 3-16-2015
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NFPA Rating	H:0 F:0 R:0
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1 Identification

- **Product name**
- **Trade name:** Sodium sulfite, anhydrous, 98+% (ACS)
- **Item number:** 93-1184
- **CAS Number:**
7757-83-7
- **EC number:**
231-821-4
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Strem Chemicals, Inc.
7 Mulliken Way
NEWBURYPORT, MA 01950
USA
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**
EMERGENCY: CHEMTREC: + 1 (800) 424-9300
During normal opening times: +1 (978) 499-1600

2 Hazard(s) identification

- **Classification of the substance or mixture**
The substance is not classified according to the Globally Harmonized System (GHS).
- **Label elements**
- **GHS label elements not applicable**
- **Hazard pictograms not applicable**
- **Signal word not applicable**
- **Hazard statements not applicable**
- **Precautionary statements**
 - P262 Do not get in eyes, on skin, or on clothing.
 - P280 Wear protective gloves/protective clothing/eye protection/face protection.
 - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 1
Fire = 0
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = *1
Fire = 0
Reactivity = 0

Trade name: Sodium sulfite, anhydrous, 98+% (ACS)

(Contd. of page 1)

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT: Not applicable.**
- **vPvB: Not applicable.**

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
7757-83-7 sodium sulphite
- **Identification number(s)**
- **EC number: 231-821-4**

4 First-aid measures

- **Description of first aid measures**
- **General information: No special measures required.**
- **After inhalation: Supply fresh air; consult doctor in case of complaints.**
- **After skin contact: Generally the product does not irritate the skin.**
- **After eye contact: Rinse opened eye for several minutes under running water.**
- **After swallowing: If symptoms persist consult doctor.**
- **Most important symptoms and effects, both acute and delayed No further relevant information available.**
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture No further relevant information available.**
- **Advice for firefighters**
- **Protective equipment: No special measures required.**

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures Not required.**
- **Environmental precautions: No special measures required.**
- **Methods and material for containment and cleaning up: Pick up mechanically.**
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling No special measures required.**
- **Information about protection against explosions and fires: No special measures required.**

(Contd. on page 3)

Trade name: Sodium sulfite, anhydrous, 98+% (ACS)

(Contd. of page 2)

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** None.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Powder
Color:	White
Odor:	Odorless
Odour threshold:	Not determined.
- **pH-value:** Not applicable.
- **Change in condition**

Melting point/Melting range:	dec °C
Boiling point/Boiling range:	Undetermined.
- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Product is not flammable.

(Contd. on page 4)

Trade name: Sodium sulfite, anhydrous, 98+% (ACS)

(Contd. of page 3)

· Ignition temperature:	
Decomposition temperature:	<i>Not determined.</i>
· Auto igniting: <i>Not determined.</i>	
· Danger of explosion: <i>Product does not present an explosion hazard.</i>	
· Explosion limits:	
Lower:	<i>Not determined.</i>
Upper:	<i>Not determined.</i>
· Vapor pressure: <i>no data hPa</i>	
· Density at 20 °C (68 °F): <i>2.633 g/cm³ (21.972 lbs/gal)</i>	
· Relative density <i>Not determined.</i>	
· Vapour density <i>Not applicable.</i>	
· Evaporation rate <i>Not applicable.</i>	
· Solubility in / Miscibility with Water: <i>Insoluble.</i>	
· Partition coefficient (n-octanol/water): <i>Not determined.</i>	
· Viscosity:	
Dynamic:	<i>Not applicable.</i>
Kinematic:	<i>Not applicable.</i>
Organic solvents:	<i>0.0 %</i>
· Solids content: <i>100.0 %</i>	
· Other information <i>No further relevant information available.</i>	

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **Possibility of hazardous reactions** *No dangerous reactions known.*
- **Conditions to avoid** *No further relevant information available.*
- **Incompatible materials:** *No further relevant information available.*
- **Hazardous decomposition products:** *No dangerous decomposition products known.*

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

7757-83-7 sodium sulphite

Oral	LD50	820 mg/kg (mouse)
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- **Primary irritant effect:**
- **on the skin:** *No irritant effect.*
- **on the eye:** *No irritating effect.*
- **Sensitization:** *No sensitizing effects known.*

(Contd. on page 5)

Trade name: Sodium sulfite, anhydrous, 98+% (ACS)

(Contd. of page 4)

· **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
The substance is not subject to classification.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

· **Toxicity**

- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.

· **Additional ecological information:**

· **General notes:** Not known to be hazardous to water.

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

· **Other adverse effects:** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**

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

· **Uncleaned packagings:**

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

14 Transport information

· **UN-Number**

· **DOT, ADN, IMDG, IATA** not regulated

· **UN proper shipping name**

· **DOT, ADN, IMDG, IATA** not regulated

· **Transport hazard class(es)**

· **DOT, ADN, IMDG, IATA**

· **Class** not regulated

· **Packing group**

· **DOT, IMDG, IATA** not regulated

(Contd. on page 6)

Trade name: Sodium sulfite, anhydrous, 98+% (ACS)

(Contd. of page 5)

- **Environmental hazards:**
- **Marine pollutant:** No
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** -

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· **Section 355 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **GHS label elements not applicable**

· **Hazard pictograms not applicable**

· **Signal word not applicable**

· **Hazard statements not applicable**

· **Precautionary statements**

P262 Do not get in eyes, on skin, or on clothing.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

(Contd. on page 7)

Trade name: Sodium sulfite, anhydrous, 98+% (ACS)

(Contd. of page 6)

P403+P233 *Store in a well-ventilated place. Keep container tightly closed.*
P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** *Technical Department.*
- **Contact:** *Technical Director*
- **Date of preparation / last revision** *09/17/2015 / -*

· **Abbreviations and acronyms:**

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

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

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

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

1. PRODUCT AND COMPANY IDENTIFICATION**1.1 Product identifiers**

Product name : Hydroquinone

Product Number : H9003
Brand : Sigma-Aldrich
Index-No. : 604-005-00-4

CAS-No. : 123-31-9

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheetCompany : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USATelephone : +1 800-325-5832
Fax : +1 800-325-5052**1.4 Emergency telephone number**

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**Acute toxicity, Oral (Category 4), H302
Serious eye damage (Category 1), H318
Skin sensitisation (Category 1), H317
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

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

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,4-Benzenediol
1,4-Dihydroxybenzene

Formula : C₆H₆O₂
Molecular weight : 110.11 g/mol
CAS-No. : 123-31-9
EC-No. : 204-617-8
Index-No. : 604-005-00-4

Hazardous components

Component	Classification	Concentration
Hydroquinone	Acute Tox. 4; Eye Dam. 1; Skin Sens. 1; Muta. 2; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H317, H318, H341, H351, H410	<= 100 %

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 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.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Air and light sensitive.

Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Hydroquinone	123-31-9	TWA	1.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye irritation Eye damage Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Confirmed animal carcinogen with unknown relevance to humans Sensitizer		
		TWA	1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Dermal Sensitization Eye irritation Eye damage 2014 Adoption Confirmed animal carcinogen with unknown relevance to humans		
		TWA	2.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	2 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	2.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Hydroquinone	123-31-9	Methemoglobin	1.500 %	In blood	ACGIH - Biological Exposure Indices (BEI)
	Remarks	During or end of shift			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

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 contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

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)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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 N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: crystalline Colour: colourless
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	3.7 at 70 g/l
e) Melting point/freezing point	Melting point/range: 172 - 175 °C (342 - 347 °F) - lit.
f) Initial boiling point and boiling range	285 °C (545 °F) - lit.
g) Flash point	165 °C (329 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	1 hPa (1 mmHg) at 132 °C (270 °F)
l) Vapour density	3.80 - (Air = 1.0)
m) Relative density	1.332 g/cm ³
n) Water solubility	50 g/l
o) Partition coefficient: n-octanol/water	log Pow: 0.59
p) Auto-ignition temperature	515.56 °C (960.01 °F)
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

Bulk density	550 - 650 kg/m ³
Solubility in other solvents	Methanol Diethylether
Relative vapour density	3.80 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Air Light.

10.5 Incompatible materials

Strong bases, Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

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

Inhalation: No data available

LD50 Dermal - Rabbit - > 2,000 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

in vivo assay - Mouse

Result: May cause sensitisation by skin contact.

May cause allergic skin reaction.

(OECD Test Guideline 429)

Germ cell mutagenicity

Laboratory experiments have shown mutagenic effects.

In vitro tests showed mutagenic effects

DNA repair

Rat - Liver cells

Result: negative

Mutagenicity (micronucleus test)

Mouse

Result: positive

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Hydroquinone)

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.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: MX3500000

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

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

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish LC50 - *Oncorhynchus mykiss* (rainbow trout) - 0.04 - 0.1 mg/l - 96.0 h

Toxicity to daphnia and other aquatic invertebrates EC50 - *Daphnia magna* (Water flea) - 0.13 mg/l - 48 h

Toxicity to algae EC50 - *Pseudokirchneriella subcapitata* (green algae) - 0.335 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability Biotic/Aerobic - Exposure time 14 d
Result: 86 % - Readily biodegradable

12.3 Bioaccumulative potential

Bioaccumulation *Leuciscus idus* (Golden orfe) - 3 d
- 50 µg/l

Bioconcentration factor (BCF): 40

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

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

12.6 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.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Hydroquinone)
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Hydroquinone)
Marine pollutant: yes

IATA

UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Hydroquinone)

Further information

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

15. REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Hydroquinone	123-31-9	2007-07-01

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Hydroquinone	123-31-9	2007-07-01

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Hydroquinone	123-31-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Hydroquinone	123-31-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Hydroquinone	123-31-9	2007-07-01

California Prop. 65 Components

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

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.13

Revision Date: 02/26/2015

Print Date: 09/21/2015

SAFETY DATA SHEET

1 IDENTIFICATION

Product Name	SODIUM CARBONATE MONOHYDRATE
Recommended use & restriction on use	
Recommended use	Industrial, Manufacturing or Laboratory use
Restrictions on use	Not known
Supplier:	
Company name	Canton Chem Inc.
Address	6310 Kerne Ct Clarksville, MD 21029
Telephone	410-531-5671
Fax	410-531-5736
Email	info@cantonchem.com
Emergency telephone number	800-255-3924 (24 hr)
Contact Name:	Chem-Tel, Inc.

2 HAZARD(S) IDENTIFICATION

Hazard classification

Health hazards Serious eye damage/eye irritation: Category 2A

Label elements

Hazard symbol:



Signal word

Warning

Hazard statement

Causes serious eye irritation

Precautionary statement

Prevention

Wash hands thoroughly after handling. Wear eye protection/face protection

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Other hazards which do not result in GHS None

classification

3 COMPOSITION/INFORMATION ON INGREDIENTS	
Composition comments	The components are not hazardous or are below required disclosure limits

4 FIRST-AID MEASURES

General information	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance
Ingestion	Rinse mouth thoroughly. Call a POISON CENTER or doctor/physician if you feel unwell
Inhalation	Move to fresh air. Get medical attention if symptoms persist
Skin contact	Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing
Most important symptoms/effects, acute and delayed	
Symptoms	Irritating to eyes, respiratory system and skin
Indication of immediate medical attention and special treatment needed	
Treatment	Treat symptomatically. Symptoms may be delayed

5 FIRE-FIGHTING MEASURES

General fire hazards	No unusual fire or explosion hazards noted
Suitable (and unsuitable) extinguishing media	
Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials
Unsuitable extinguishing media	None known
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed

Special protective equipment and precautions for firefighters

Special fire fighting procedures

Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters:

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment.

Methods and material for containment and cleaning up

Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.

Notification Procedures:

Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7 HANDLING AND STORAGE

Precautions for safe handling:

Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dust. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities:

Keep containers tightly closed. Store in cool, dry place. Store in a well-ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limits

None of the components have assigned exposure limits.

Appropriate engineering controls

No data available

Individual protection measures, such as personal protective equipment

General information:	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.
Eye/face protection:	Wear safety glasses with side shields (or goggles). Use tight fitting goggles if dust is generated.
Skin protection Hand protection	Wear protective gloves
Other	Wear suitable protective clothing
Respiratory protection	In case of inadequate ventilation use suitable respirator.
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state:	Solid
Form:	Powder.
Color:	White
Odor:	Odorless
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	851 °C
Initial boiling point and boiling range:	1,633 °C
Flash Point:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	2.25 (20 °C)
Solubility(ies)	

Solubility in water:	300 g/l (60 °C)
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Molecular weight:	124.00 g/mol

10 STABILITY AND REACTIVITY

Reactivity	No dangerous reaction known under conditions of normal use
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur
Conditions to avoid:	Contact with incompatible materials. Heat. Moisture. Avoid dust formation
Incompatible materials	Acids. Fluorine. Aluminum. Zinc. Moisture. Strong oxidizing agents
Hazardous decomposition products	Thermal decomposition may release oxides of carbon. Sodium oxides

11 TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	May cause irritation of the gastrointestinal tract
Ingestion:	
Inhalation	May cause irritation to the respiratory system
Skin contact	May cause irritation
Eye contact	Causes serious eye irritation
Information on toxicological effects	
Acute toxicity (list all possible routes of exposure)	
Oral	No data available
Dermal	No data available
Inhalation	No data available

Repeated dose toxicity	No data available
Skin corrosion/irritation	May cause skin irritation
Serious eye damage/eye irritation	Causes serious eye irritation
Respiratory or skin sensitization	Not a skin sensitizer
Carcinogenicity	This substance has no evidence of carcinogenic properties
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans	No carcinogenic components identified
US. National Toxicology Program (NTP) Report on Carcinogens	No carcinogenic components identified
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):	No carcinogenic components identified
Germ cell mutagenicity	
In vitro	No mutagenic components identified
In vivo	No mutagenic components identified
Reproductive toxicity	No components toxic to reproduction
Specific target organ toxicity - single exposure	No data available
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	Not classified
Other effects	None known

12 **ECOLOGICAL INFORMATION**

Ecofotoxicity:

Acute hazards to the aquatic environment

Fish No data available

Aquatic invertebrates No data available

Chronic hazards to the aquatic environment

Fish	No data available
Aquatic invertebrates	No data available
Toxicity to Aquatic Plants	No data available
Persistence and degradability Biodegradation	There are no data on the degradability of this product
BOD/COD ratio	No data available
Bioaccumulative potential Bioconcentration factor (BCF)	No data available on bioaccumulation
Partition coefficient n-octanol / water (log Kow)	No data available
Mobility in soil:	The product is water soluble and may spread in water systems
Other adverse effects	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13 **DISPOSAL CONSIDERATIONS**

Disposal instructions	Discharge, treatment, or disposal may be subject to national, state, or local laws
Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied

14 **TRANSPORT INFORMATION**

DOT	Not regulated
IMDG	Not regulated
IATA	Not regulated

15 **REGULATORY INFORMATION**

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	None present or none present in regulated quantities
CERCLA Hazardous Substance List (40 CFR 302.4):	None present or none present in regulated quantities.
Superfund amendments and reauthorization act of 1986 (SARA) Hazard categories	<input checked="" type="checkbox"/> Acute (Immediate) <input type="checkbox"/> Chronic (Delayed) <input type="checkbox"/> Fire <input type="checkbox"/> Reactive <input type="checkbox"/> Pressure Generating
SARA 302 Extremely hazardous substance	None present or none present in regulated quantities.
SARA 304 Emergency release notification	None present or none present in regulated quantities
SARA 311/312 Hazardous chemical	None present or none present in regulated quantities
SARA 313 (TRI reporting)	None present or none present in regulated quantities
Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)	None present or none present in regulated quantities
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):	None present or none present in regulated quantities
US state regulations	
US. California Proposition 65	No ingredient regulated by CA Prop 65 present
US. New Jersey Worker and Community Right-to-Know Act	No ingredient regulated by NJ Right-to-Know Law present
US. Massachusetts RTK - Substance List	No ingredient regulated by MA Right-to-Know Law present
US. Pennsylvania RTK - Hazardous Substances	No ingredient regulated by PA Right-to-Know Law present
US. Rhode Island RTK	No ingredient regulated by RI Right-to-Know Law present
Inventory status	

Inventory Status:

Australia AICS:
Canada DSL Inventory
List: EINECS, ELINCS or
NLP: Japan (ENCS) List:
China Inv. Existing Chemical
Substances: Korea Existing Chemicals
Inv. (KECI): Canada NDSL Inventory:
Philippines PICCS:
US TSCA Inventory:
New Zealand Inventory of
Chemicals: Japan ISHL Listing:
Japan Pharmacopoeia Listing:

On or in compliance with the inventory
On or in compliance with the inventory
On or in compliance with the inventory
Not in compliance with the inventory.
On or in compliance with the inventory
On or in compliance with the inventory
Not in compliance with the inventory.
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Not in compliance with the inventory.
Not in compliance with the inventory.

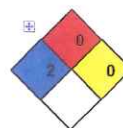
16 **OTHER INFORMATION**

Revision information

Version: 1.1

Revision Date: 3-16-2015

NFPA Hazard ID



Flammability
Health
Reactivity
Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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 Canton 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 Canton has been advised of the possibility of such damages



Safety Data Sheet

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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