

MSDS **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

PYROCATECHOL

MSDS Number: P7896 --- *Effective Date: 09/14/00*

1. Product Identification

Synonyms: Catechol; 1,2-benzenediol; 1,2-dihydroxy benzene

CAS No.: 120-80-9

Molecular Weight: 110.11

Chemical Formula: C₆H₆O₂

Product Codes:

J.T. Baker: U672

Mallinckrodt: 1724

| Ingredient | CAS No | Percent | Hazardous |
|------------|----------|-----------|-----------|
| Catechol | 120-80-9 | 90 - 100% | Yes |

3. Hazards Identification

Emergency Overview

**AFFECTS EYES, SKIN, RESPIRATORY TRACT AND CENTRAL NERVOUS SYSTEM.
EXPOSURE MAY PRODUCE LIVER, KIDNEY, AND NEUROLOGICAL DISORDERS.
MAY CAUSE ALLERGIC SKIN REACTION.**

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Life)

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 3 - Severe (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: White (Corrosive)

Potential Health Effects

Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. Breathing vapor or dust results in digestive disturbances (vomiting, difficulty in swallowing, diarrhea, loss of appetite). Systemic poisoning may occur with symptoms similar to those of ingestion.

Ingestion:

Poison. Symptoms may include burning pain in mouth and throat, abdominal pain, headache, dizziness, muscular weakness, irregular breathing, coma, and possibly death. May interfere with blood's capability to carry oxygen (methemoglobinemia), as evidenced by bluish color to skin and lips. With catechol exposure, convulsions are more marked than with phenol exposure, and blood dyscrasias (imbalance of components of the blood) have been noted.

Skin Contact:

Corrosive. May be absorbed through the skin with systemic poisoning effects to follow. Discoloration and severe burns may occur. May cause allergic skin reactions.

Eye Contact:

Corrosive. Redness, pain, blurred vision may occur. May cause severe damage and blindness.

Chronic Exposure:

Repeated exposure may cause symptoms described for acute poisoning as well as liver damage.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids

occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Flash point: 127.2C (261F) CC

Flammable limits in air % by volume:

lcl: 1.4

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

Explosion:

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Sealed containers may rupture when heated.

Fire Extinguishing Media:

Water spray, dry chemical, alcohol foam, or carbon dioxide.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. Storage and use should be in No Smoking Areas. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- ACGIH Threshold Limit Value (TLV):

5 ppm (TWA) skin, A3 animal carcinogen.

- NIOSH Recommended Exposure Limits (RELs):

5 ppm (TWA) skin.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half-face respirator with an organic vapor cartridge and particulate filter (NIOSH type N95 or better filter) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece respirator with an organic vapor cartridge and particulate filter (NIOSH N 100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P particulate filter. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See 29CFR1910.134 for details.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Colorless crystals.

Odor:

Phenolic odor.

Solubility:

Soluble in 2-3 parts water.

Specific Gravity:

1.344

pH:

No information found.

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

245C (473F)

Melting Point:

104 - 106C (219 - 223F)

Vapor Density (Air=1):

3.79

Vapor Pressure (mm Hg):

10 @ 118.3C (244F)

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Light sensitive. Discolors on exposure to air or light.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Acid chlorides, acid anhydrides, bases, oxidizing agents.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Oral rat LD50: 260 mg/kg; skin rabbit LD50: 800 mg/kg; Investigated as a tumorigen, mutagen, reproductive effector.

| -----\Cancer Lists\----- | | | |
|--------------------------|----------------------|-------------|---------------|
| Ingredient | ---NTP Carcinogen--- | | IARC Category |
| | Known | Anticipated | |
| Catechol (120-80-9) | No | No | 2B |

12. Ecological Information

Environmental Fate:

When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material is not expected to evaporate significantly. When released into water, this material may biodegrade to a moderate extent. When released into water, this material is not expected to evaporate significantly. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

Environmental Toxicity:

The LC50/96-hour values for fish are between 1 and 10 mg/l.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
(PYROCATECHOL)

Hazard Class: 6.1, 8

UN/NA: UN2928

Packing Group: II

Information reported for product/size: 500G

International (Water, I.M.O.)

Proper Shipping Name: TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
(PYROCATECHOL)

Hazard Class: 6.1, 8

UN/NA: UN2928

Packing Group: II

Information reported for product/size: 500G

15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|--|------|-----|-------|-----------|
| Ingredient | TSCA | EC | Japan | Australia |
| Catechol (120-80-9) | Yes | Yes | Yes | Yes |

| -----\Chemical Inventory Status - Part 2\----- | | | | |
|--|-------|-----|--------------------|-------|
| Ingredient | Korea | DSL | --Canada-- NDSL | Phil. |
| Catechol (120-80-9) | Yes | Yes | No | Yes |

| -----\Federal, State & International Regulations - Part 1\----- | | | | |
|---|------------|-----|--------------------|----------------|
| Ingredient | -SARA 302- | | -----SARA 313----- | |
| | RQ | TPQ | List | Chemical Catg. |
| Catechol (120-80-9) | No | No | Yes | No |

| -----\Federal, State & International Regulations - Part 2\----- | | | |
|---|--------|--------|--------|
| Ingredient | CERCLA | -RCRA- | -TSCA- |
| | | 261.33 | 8 (d) |
| Catechol (120-80-9) | 100 | No | Yes |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No

SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: No information found.

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **1** Reactivity: **0**

Label Hazard Warning:

DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CORROSIVE. CAUSES SEVERE BURNS TO EVERY AREA OF CONTACT. AFFECTS EYES, SKIN, RESPIRATORY TRACT AND CENTRAL NERVOUS SYSTEM. EXPOSURE MAY PRODUCE LIVER, KIDNEY, AND NEUROLOGICAL DISORDERS. MAY CAUSE ALLERGIC SKIN REACTION.

Label Precautions:

Do not breathe dust or vapor.

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

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Label First Aid:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 8, 11.

Disclaimer:

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Prepared by: Strategic Services Division
Phone Number: (314) 539-1600 (U.S.A.)

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ASCORBIC ACID

MSDS Number: A7608 --- *Effective Date: 11/02/01*

1. Product Identification

Synonyms: L-ascorbic acid; vitamin C; L-3-Ketothreohexuronic acid lactone

CAS No.: 50-81-7

Molecular Weight: 176.13

Chemical Formula: C₆H₈O₆

Product Codes: J.T. Baker: 0936, 0937, 0938, B581

Mallinckrodt: 1852, 4407, 8829

| Ingredient | CAS No | Percent | Hazardous |
|-----------------|---------|---------|-----------|
| L-Ascorbic Acid | 50-81-7 | 100% | Yes |

3. Hazards Identification

Emergency Overview

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight
Flammability Rating: 1 - Slight
Reactivity Rating: 0 - None
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Orange (General Storage)

Potential Health Effects

Ascorbic acid is relatively non-hazardous in routine industrial situations. It is not expected to

Inhalation:

May cause mild irritation to the respiratory tract.

Ingestion:

Large oral doses may cause gastrointestinal disturbances.

Skin Contact:

May cause mild irritation.

Eye Contact:

May cause mild irritation.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

See Health Hazards General.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if irritation persists.

Ingestion:

Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Contact:

Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact:

Wash thoroughly with running water. Get medical advice if irritation develops.

5. Fire Fighting Measures

Fire:

As with most organic solids, fire is possible at elevated temperatures or by contact with an

ignition source.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from any source of heat or ignition. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL):

15 mg/m³ total dust, 5 mg/m³ respirable fraction for nuisance dusts.

- ACGIH Threshold Limit Value (TLV):

10 mg/m³ total dust containing no asbestos and < 1% crystalline silica for Particulates Not Otherwise Classified (PNOC).

Ventilation System:

In general, dilution ventilation is a satisfactory health hazard control for this substance.

However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece

positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White crystals.

Odor:

Odorless.

Solubility:

33g/100g water.

Density:

1.65

pH:**% Volatiles by volume @ 21C (70F):**

0

Boiling Point:

Not applicable.

Melting Point:

192C (378F) Slightly decomposes.

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Aqueous solutions are rapidly oxidized by air.

Hazardous Decomposition Products:

May produce acrid smoke and irritating fumes when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizers and alkali hydroxides, alkalis, iron, copper, sodium salicylate, sodium nitrite, theobromine and methenamine.

Conditions to Avoid:

No information found.

11. Toxicological Information

Oral (rat) LD50 11,900 mg/kg . Investigated as a tumorigen, mutagen, and reproductive effector.

| -----\Cancer Lists\----- | | | |
|---------------------------|----------------------|-------------|---------------|
| Ingredient | ---NTP Carcinogen--- | | IARC Category |
| | Known | Anticipated | |
| L-Ascorbic Acid (50-81-7) | No | No | None |

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|--|------|-----|-------|-----------|
| Ingredient | TSCA | EC | Japan | Australia |
| L-Ascorbic Acid (50-81-7) | Yes | Yes | Yes | Yes |

| -----\Chemical Inventory Status - Part 2\----- | | | | |
|--|-------|------------|------|-------|
| Ingredient | Korea | --Canada-- | | Phil. |
| | | DSL | NDSL | |
| L-Ascorbic Acid (50-81-7) | Yes | Yes | No | Yes |

| -----\Federal, State & International Regulations - Part 1\----- | | | | |
|---|------------|-----|--------------------|----------------|
| Ingredient | -SARA 302- | | -----SARA 313----- | |
| | RQ | TPQ | List | Chemical Catg. |
| L-Ascorbic Acid (50-81-7) | No | No | No | No |

| -----\Federal, State & International Regulations - Part 2\----- | | | |
|---|--------|--------|--------|
| Ingredient | CERCLA | -RCRA- | -TSCA- |
| | | 261.33 | 8 (d) |
| L-Ascorbic Acid (50-81-7) | No | No | No |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: No Chronic: No Fire: No Pressure: No
 Reactivity: No (Pure / Solid)

Australian Hazchem Code: No information found.

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **1** Flammability: **0** Reactivity: **0**

Label Hazard Warning:

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Label Precautions:

None.

Label First Aid:

Not applicable.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 8.

Disclaimer:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular

WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A

HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS

INFORMATION.

Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

PHOENIX INDUSTRIES INC -- SODIUM CARBONATE ANHYDROUS, TECHNICAL

MSDS Safety Information

FSC: 6810
NIIN: 00-262-8567
MSDS Date: 09/30/1997
MSDS Num: CGLCK
Product ID: SODIUM CARBONATE ANHYDROUS, TECHNICAL
MFN: 01
Responsible Party
Cage: OMLP0
Name: PHOENIX INDUSTRIES INC
Address: 11028 S LEADBETTER RD UNIT 10
City: ASHLAND VA 23005
Info Phone Number: 804-264-5183/5536
Emergency Phone Number: 804-264-5183/800-424-9300 (CHEMTREC)
Review Ind: Y
Published: Y

Contractor Summary

Cage: OMLP0
Name: PHOENIX INDUSTRIES INC
Address: 11711 S ALAMEDA ST
Box: 54083
City: LOS ANGELES CA 90054
Phone: 213-564-5711
Cage: 0YED2
Name: PHOENIX INDUSTRIES INC
Address: 1519 CHAMBERLAYNE PARKWAY
City: RICHMOND VA 23222
Phone: 804-264-5183/FAX: 264-5535

Item Description Information

Item Manager: S9G
Item Name: SODIUM CARBONATE, ANHYDROUS, TECHNICAL
Unit of Issue: DR
Quantitative Expression: 00000000025LB
UI Container Qty: 1
Type of Container: DRUM

Ingredients

Cas: 497-19-8
RTECS #: VZ4050000
Name: SODIUM CARBONATE
% Wt: 99.8

Health Hazards Data

LD50 LC50 Mixture: LD50 (ORAL, RATS)=5.6G/KG.
Route Of Entry Inds - Inhalation: YES
Skin: NO
Ingestion: NO
Carcinogenicity Inds - NTP: NO
IARC: NO
OSHA: NO
Effects of Exposure: MAY CAUSE SEVERE EYE IRRIT INCLUDING CORNEAL OPACITIES.
DUSTS & MISTS IRRIT TO SKIN, MUCOUS MEMBRANES & UPPER RESP TRACT. MAY
CAUSE INFLAMMATION OF MUC MEMBRANES IN RESP TRACT & SKIN. DUSTS MAY CAUSE
SEVERE IRRIT OF EYES & SLIGHT IRRIT OF NOSE & THROAT. REPEATED
CONTACT MAY CAUSE REDNESS & DRY CRACKED SKIN.
Explanation Of Carcinogenicity: NOT RELEVANT
Signs And Symptions Of Overexposure: EYE, SKIN, MUCOUS MEMBRANES, UPPER RESP
TRACT IRRITATION. MUC MEMBRANES OF RESP TRACT & SKIN INFLAMMATION.

Medical Cond Aggravated By Exposure: NONE SPECIFIED BY MFG.
First Aid: EYE:FLUSH W/LG AMTS OF WATER FOR @ LEAST 15MIN LIFTING EYELIDS. SEE
OPHTHALMOLOGIST IF IRRIT PERSISTS. SKIN:WASH W/ PLENTY OF WATER FOR 15MIN. IF
IRRIT OCCUR/PERSIST GET MED ATTN. INHAL: REMOVE FROM E XPOSURE. IF DISCOMFORT
OCCUR/PERSIST GET MED ATTN. INGEST: DRINK WATER TO DILUTE. GET MED ADVICE VIA
PHONE. DECONTAMIN PROCEDURE:WASH W/SOAP & WATER. NOTE TO PHYSICIAN:SEE
SUPPLEMENTAL.

=====
Handling and Disposal
=====

Spill Release Procedures: SWEEP UP AS MUCH AS POSSIBLE FOR SLAVAGE/ DISPOSAL.
WASH AWAY RESIDUE W/WATER. IF MATL CANNOT BE SLAVAGED PREFERRED METHOD OF
DISPOSAL IS IN SECURE CHEMICAL LANDFILL IAW LOC/STATE/FED ENVIRONMENTAL R
EGUALTINS.

Neutralizing Agent: SEE ABOVE

Waste Disposal Methods: IF CANNOT BE SALVAGE FROM SPILL PREFERRED METHOD OF
DISPOSAL IS IN A SECURE CHEMICAL LANDFILL. DISPOSAL MUST BE IN ACCORDANCE W/
FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. EMPTY CONTAINERS MA Y BE
INCINERATED OR DISCARDED AS GENERAL TRASH.

Handling And Storage Precautions: DO NOT STORE CLOSE TO ACIDS.MIN FREE FALL
WHEN HANDLING TO MIN DUST GENERATED.WEAR EYE PROTECTION & NIOSH/MSHA
APPROVED DUST RESP WHERE EXCESSIVE DUST

Other Precautions: POTENTIALLY DEADLY CO GAS CAN FORM IN ENCLOSED AREAS/ TANKS
WHEN ALKALINE MATLS CONTACT FOOD/BEVERAGE PRODUCTS W/SUGARS.DO NOT ENTER SUCH
AREAS TIL WELL VENTI & CO & OXY LEVELS HAVE BEEN DETERMINED SA
FE.CONT'D MONITORING ATM WHILE IN AREA.

=====
Fire and Explosion Hazard Information
=====

Flash Point Text: NON-COMBUSTIBLE.

Extinguishing Media: ALL-USE ANY MEANS SUITABLE FOR EXTINGUISHING SURROUNDING
FIRE.

Fire Fighting Procedures: NONE SPECIFIED BY MFG. HOWEVER USE PROTECTIVE
CLOTHING AND NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT
APPROPRIATE FOR THE SURROUNDING FIRE

Unusual Fire/Explosion Hazard: NONE SPECIFIED BY MFG.

=====
Control Measures
=====

Respiratory Protection: NIOSH/MSHA DUST RESP. WEAR DUST RESP IF NUISANCE DUST
TLV OF 10MG/M3 EXCEEDED OR DISCOMFORT PRESENT.

Ventilation: USE GENERAL ROOM DILUTION OR LOCAL EXHAUST VENTILATION WHERE
EXCESSIVE DUST MAY BE RELEASED INTO WORK ENVIRONMENT.

Protective Gloves: GENERAL PURPOSE GLOVES.

Eye Protection: CHEMICAL GOGGLES.

Other Protective Equipment: FULL COVER CLOTHING.

Work Hygienic Practices: WASH THOROUGHLY AFTER HANDLING.

Supplemental Safety and Health: PN(1% SOLN)=11.4. NOTE TO DR:IRRIT EFFECTS OF
HI CONCENT MAY PRODUCE CORNEAL OPACITIES & VESICULAR SKIN REACTIONS W/
ABRADED SKIN ONLY. TREATMENT IS SYMPTOMATIC & SUPPORTIVE. NO CHEM LISTED
BY CA PROP 65 ARE PRESENT AT LEVEL THAT POSES SIGNRISK OF CANCER OR
REPORDUCTIVE TOXICITY.

=====
Physical/Chemical Properties
=====

HCC: B3

B.P. Text: DECOMPOSES

Spec Gravity: 2.509

Solubility in Water: 55.8 WT % @ 20C

Appearance and Odor: WHITE GRANULAR POWDER, ODORLESS.

=====
Reactivity Data
=====

Stability Indicator: YES

Stability Condition To Avoid: CONTACT W/ACIDS EXCEPT UNDER CONTROLLED
CONDITIONS.

Materials To Avoid: REACTS W/ACIDS W/RELEASE OF LG VOL OF CARBOND DIOXIDE &

HEAT;CONTACY W/ACIDS;CARBON MONOXIDE IN CONFINED AREAS W/SUGARS.
Hazardous Decomposition Products: NONE SPECIFIED BY MFG.
Hazardous Polymerization Indicator: NO
Conditions To Avoid Polymerization: NOT RELEVANT

=====
Toxicological Information
=====

=====
Ecological Information
=====

=====
MSDS Transport Information
=====

=====
Regulatory Information
=====

=====
Other Information
=====

=====
Transportation Information
=====

Responsible Party Cage: OMLP0
Trans ID NO: 62738
Product ID: SODIUM CARBONATE ANHYDROUS, TECHNICAL
MSDS Prepared Date: 09/30/1997
Review Date: 04/14/1998
MFN: 1
Net Unit Weight: 25.00 LBS
Multiple KIT Number: 0
Review IND: Y
Unit Of Issue: DR
Container QTY: 1
Type Of Container: DRUM
Additional Data: PH=11.4 AT 1% SOLUTION

=====
Detail DOT Information
=====

DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
=====

=====
Detail IMO Information
=====

IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION
=====

=====
Detail IATA Information
=====

IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
=====

=====
Detail AFI Information
=====

AFI PSN Code: ZZZ
AFI Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION
=====

=====
HAZCOM Label
=====

Product ID: SODIUM CARBONATE ANHYDROUS, TECHNICAL
Cage: OMLP0
Company Name: PHOENIX INDUSTRIES INC
Street: 11711 S ALAMEDA ST
PO Box: 54083
City: LOS ANGELES CA
Zipcode: 90054
Health Emergency Phone: 804-264-5183/800-424-9300 (CHEMTREC)
Label Required IND: Y

Date Of Label Review: 04/14/1998
Status Code: C
Label Date: 04/14/1998
Origination Code: F
Eye Protection IND: YES
Skin Protection IND: YES
Signal Word: CAUTION
Respiratory Protection IND: YES
Health Hazard: None
Contact Hazard: Slight
Fire Hazard: None
Reactivity Hazard: None

Hazard And Precautions: MAY CAUSE SEVERE EYE IRRIT INCLUDING CORNEAL
OPACITIES.DUSTS/MISTS IRRIT TO SKIN/MUC MEM/UPPER RESP TRACT.MAY CAUSE
INFLAMM OF MUC MEM IN RESP TRACT/SKIN.DUSTS MAY CAUSE SEVERE IRRIT OF EYES/
SLIGHT I RRRIT OF NOSE/THROAT.REPEATED CONTACT MAY CAUSE REDNESS/DRY CRACKED
SKIN.TARGET ORGAN:EYE/SKIN/RESP TRACT/MUC MEM/NOSE/THROAT.1ST AID:EYE:FLUSH
W/LG AMTS OF WATER FOR @ LEAST 15MIN LIFTING EYELIDS.SEE O PHTHALMOLOGIST IF
IRRIT PERSISTS.SKIN:WASH W/LOTS OF WATER FOR 15MIN.IRRIT OCCUR/PERSIST GET
MED ATTN.INHAL:REMOVE TO FRESH AIR.DISCOMFORT OCCUR/PERSIST GET MED ATTN.
INGEST:DRINK WATER.GET MED ADVICE VIA PHONE.

=====
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particular situation regardless of similarity to a corresponding Department
of Defense or other government situation.

MSDS **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

UREA

MSDS Number: U4725 --- *Effective Date: 11/02/01*

1. Product Identification

Synonyms:

CAS No.: 57-13-6

Molecular Weight: 60.06

Chemical Formula: (NH₂)₂CO

Product Codes: J.T. Baker: 4111, 4203, 4204, 4206, 4208, 5594, 5607

Mallinckrodt: 3192, 7729, 7816, 8642, 8644, 8647, 8648

| Ingredient | CAS No | Percent | Hazardous |
|------------|---------|-----------|-----------|
| Urea | 57-13-6 | 99 - 100% | Yes |

3. Hazards Identification

Emergency Overview

SKIN, EYES AND RESPIRATORY TRACT.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 0 - None

Flammability Rating: 1 - Slight

Reactivity Rating: 0 - None
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath. May be absorbed into the bloodstream with symptoms similar to ingestion.

Ingestion:

Causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. May also cause headache, confusion and electrolyte depletion.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain.

Eye Contact:

Causes irritation, redness, and pain.

Chronic Exposure:

A study of 67 workers in an environment with high airborne concentrations of urea found a high incidence of protein metabolism disturbances, moderate emphysema, and chronic weight loss.

Aggravation of Pre-existing Conditions:

Supersensitive individuals with skin or eye problems, kidney impairment or asthmatic condition should have physician's approval before exposure to urea dust.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if symptoms occur.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Explosion:

Reactions with incompatibles may pose an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

For Urea:

-AIHA Workplace Environmental Exposure Limit (WEEL):

10 mg/m³, 8-hour TWA

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If heat is involved, an ammonia/methylamine, dust/mist cartridge may be necessary.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White crystals or white powder.

Odor:

Develops odor of ammonia.

Solubility:

Very soluble in water.

Specific Gravity:

1.32 @ 20C/4C

pH:

7.2 (10% in water)

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

Decomposes.

Melting Point:

132 - 135C (270 - 275F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Urea decomposes upon heating and can form products including ammonia, oxides of nitrogen, cyanuric acid, cyanic acid, biuret, carbon dioxide.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Urea reacts with calcium hypochlorite or sodium hypochlorite to form the explosive nitrogen trichloride. It is incompatible with sodium nitrite, gallium perchlorate, strong oxidizing agents (permanganate, dichromate, nitrate, chlorine), phosphorus pentachloride, nitrosyl perchlorate, titanium tetrachloride and chromyl chloride.

Conditions to Avoid:

Incompatibles.

11. Toxicological Information

Urea: Oral rat LD50: 8471 mg/kg. Investigated as a tumorigen, mutagen, reproductive effector.

| -----\Cancer Lists\----- | | | |
|--------------------------|----------------------|-------------|---------------|
| Ingredient | ---NTP Carcinogen--- | | IARC Category |
| | Known | Anticipated | |
| Urea (57-13-6) | No | No | None |

12. Ecological Information

Environmental Fate:

When released to soil, this material will hydrolyze into ammonium in a matter of days to several weeks. When released into the soil, this material may leach into groundwater. When released into water, this material may biodegrade to a moderate extent. When released into water, this material is not expected to evaporate significantly. This material has an experimentally-determined bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life of less than 1 day.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|--|------|-----|-------|-----------|
| Ingredient | TSCA | EC | Japan | Australia |
| Urea (57-13-6) | Yes | Yes | Yes | Yes |

-----\Chemical Inventory Status - Part 2\-----

| Ingredient | Korea | --Canada-- | | Phil. |
|---|------------|------------|--------------------|----------------|
| | | DSL | NDSL | |
| Urea (57-13-6) | Yes | Yes | No | Yes |
| -----\Federal, State & International Regulations - Part 1\----- | | | | |
| Ingredient | -SARA 302- | | -----SARA 313----- | |
| | RQ | TPQ | List | Chemical Catg. |
| Urea (57-13-6) | No | No | No | No |
| -----\Federal, State & International Regulations - Part 2\----- | | | | |
| Ingredient | CERCLA | -RCRA- | | -TSCA- |
| | | 261.33 | 8 (d) | |
| Urea (57-13-6) | No | No | No | |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
 Reactivity: No (Pure / Solid)

Australian Hazchem Code: No information found.

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **1** Flammability: **0** Reactivity: **0**

Label Hazard Warning:

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Label Precautions:

Avoid breathing dust.
 Keep container closed.
 Avoid contact with eyes, skin and clothing.
 Use only with adequate ventilation.
 Wash thoroughly after handling.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 8.

Disclaimer:

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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

MSDS **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

SODIUM SULFITE

MSDS Number: S5066 --- *Effective Date: 11/02/01*

1. Product Identification

Synonyms: Sodium sulfite anhydrous; disodium sulfite; sulfurous acid, disodium salt; exsiccated sodium sulfite

CAS No.: 7757-83-7

Molecular Weight: 126.04

Chemical Formula: Na₂SO₃

Product Codes: J.T. Baker: 3888, 3922

Mallinckrodt: 8049, 8056, 8064

| Ingredient | CAS No | Percent | Hazardous |
|----------------|-----------|-----------|-----------|
| Sodium Sulfite | 7757-83-7 | 90 - 100% | Yes |

3. Hazards Identification

Emergency Overview

BREATHING DIFFICULTIES. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight
Flammability Rating: 0 - None
Reactivity Rating: 1 - Slight
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Orange (General Storage)

Potential Health Effects

Although only moderately toxic in large amounts, sulfites can pose risk to some asthmatics producing central nervous system depression, bronchoconstriction and anaphylaxis.

Inhalation:

Inhalation of dust may cause irritation to the mucous membranes of the upper respiratory tract. Use of bronchodilators preserved with sulfites can cause allergic reactions.

Ingestion:

May cause gastric irritation by the liberation of sulfurous acid. Large doses may result in circulatory disturbances, diarrhea, and central nervous system depression. Estimated fatal dose is 10g to 0.5 - > 5g/kg.

Skin Contact:

May cause irritation.

Eye Contact:

May cause irritation, redness and pain.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

Some individuals are said to be dangerously sensitive to minute amounts of sulfites in foods and some bronchodilator medicines preserved with sulfites. Symptoms may include bronchoconstriction, shock, gastrointestinal disturbances, angio edema, flushing, and tingling sensations.

4. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Call a physician immediately.

Skin Contact:

Remove any contaminated clothing. Wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard. If involved in a fire, can emit toxic fumes and irritating and corrosive gases.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-ACGIH Threshold Limit Value (TLV):

5mg/m³ (TWA) for sodium bisulfite & for sodium metabisulfite, A4 Not classifiable as a human carcinogen.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece

positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White crystals.

Odor:

Odorless.

Solubility:

Soluble in ca. 3.2 parts water.

Specific Gravity:

2.6 @ 15.4C (60F)

pH:

ca. 9

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

Not applicable.

Melting Point:

No information found.

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Heat and moisture contribute to instability. May air-oxidize.

Hazardous Decomposition Products:

Burning may produce sulfur oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Acids, strong oxidizers, high temperatures.

Conditions to Avoid:

Heat and moisture.

11. Toxicological Information

Oral mouse LD50: 820 mg/kg. Investigated as a tumorigen and mutagen.

| -----\Cancer Lists\----- | | | |
|----------------------------|----------------------|-------------|---------------|
| Ingredient | ---NTP Carcinogen--- | | IARC Category |
| | Known | Anticipated | |
| Sodium Sulfite (7757-83-7) | No | No | 3 |

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|--|------|-----|-------|-----------|
| Ingredient | TSCA | EC | Japan | Australia |
| Sodium Sulfite (7757-83-7) | Yes | Yes | Yes | Yes |

| -----\Chemical Inventory Status - Part 2\----- | | | | |
|--|-------|------------|------|-------|
| Ingredient | Korea | --Canada-- | | Phil. |
| | | DSL | NDSL | |
| Sodium Sulfite (7757-83-7) | Yes | Yes | No | Yes |

| -----\Federal, State & International Regulations - Part 1\----- | | | | |
|---|------------|-----|--------------------|----------------|
| Ingredient | -SARA 302- | | -----SARA 313----- | |
| | RQ | TPQ | List | Chemical Catg. |
| | | | | |

| | | | | |
|---|--------|--------|--------|----|
| Sodium Sulfite (7757-83-7) | No | No | No | No |
| -----\Federal, State & International Regulations - Part 2\----- | | | | |
| Ingredient | CERCLA | -RCRA- | -TSCA- | |
| | | 261.33 | 8 (d) | |
| ----- | | | | |
| Sodium Sulfite (7757-83-7) | No | No | No | |

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: No information found.

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **2** Flammability: **0** Reactivity: **0**

Label Hazard Warning:

BREATHING DIFFICULTIES. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

Label Precautions:

Avoid breathing dust.

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Keep container closed.

Use with adequate ventilation.

For Reagent and Technical Grades: Not For Food Use. For TAC Grades: Do not use in meats or in foods recognized as a source of Vitamin B-1, nor in fruits or vegetables to be served or sold raw to consumers or to be presented to consumers as fresh.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In all cases call a physician.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 8.

Disclaimer:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their

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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

JONES-HAMILTON CO -- SODIUM BISULFATE, ANHYDROUS GLOBULAR, TECHNIC

MSDS Safety Information

FSC: 6810
NIIN: 00-270-9984
MSDS Date: 09/01/1996
MSDS Num: CFMQD
Product ID: SODIUM BISULFATE, ANHYDROUS GLOBULAR, TECHNICAL
MFN: 02
Responsible Party
Cage: 93594
Name: JONES-HAMILTON CO
Address: 8400 ENTERPRISE DRIVE
Box: 464
City: NEWARK CA 94560-3310
Info Phone Number: 510-799-2471/510-792-4500
Emergency Phone Number: 800-424-9300 CHEMTREC
Preparer's Name: COLBY LA PLACE
Review Ind: Y
Published: Y

Contractor Summary

Cage: 0AZD7
Name: JEM SALES INC INCHEMCO DIV
Address: 430 LAVENDER DR
City: ROME GA 30165-2262
Phone: 706-232-1709
Cage: 93594
Name: JONES-HAMILTON CO.
Address: 8400 ENTERPRISE DRIVE
City: NEWARK CA 94560
Phone: 510-797-2471/510-792-4500
Cage: 0YED2
Name: PHOENIX INDUSTRIES INC
Address: 1519 CHAMBERLAYNE PARKWAY
City: RICHMOND VA 23222
Phone: 804-264-5183/FAX: 264-5535

Item Description Information

Item Manager: S9G
Item Name: SODIUM BISULFATE, ANHYDROUS, TECHNICAL
Specification Number: MIL-S-16917
Type/Grade/Class: I TYPE
Unit of Issue: DR
Quantitative Expression: 00000000100LB
UI Container Qty: 1
Type of Container: DRUM

Ingredients

Cas: 10034-88-5
RTECS #: VZ1870000
Name: SODIUM BISULFATE
% Wt: 93.2
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED
ACGIH TLV: NOT ESTABLISHED

Cas: 7757-82-6
RTECS #: WE1650000
Name: SODIUM SULFATE
% Wt: 6.5
Other REC Limits: NONE RECOMMENDED
OSHA PEL: NOT ESTABLISHED

ACGIH TLV: NOT ESTABLISHED

Health Hazards Data

LD50 LC50 Mixture: LD50 RAT INGEST 2800MG/KG

Route Of Entry Inds - Inhalation: YES

Skin: YES

Ingestion: YES

Carcinogenicity Inds - NTP: NO

IARC: NO

OSHA: NO

Effects of Exposure: EYE CONTACT MAY CAUSE MILD TO SEVERE IRRITATION. SKIN CONTACT MAY CAUSE MODERATE IRRITATION. INGESTION MAY CAUSE GI TRACT IRRITATION. INHALATION MAY CAUSE RESPIRATORY IRRITATION.

Explanation Of Carcinogenicity: THERE ARE NO INGREDIENTS ABOVE 0.1% WHICH ARE IDENTIFIED AS CARCINOGENS BY NTP, IARC OR OSHA.

Signs And Symptions Of Overexposure: EYES-IRRITATION. SKIN-IRRITATION. INHALED-IRRITATION. INGESTION-IRRITATION.

Medical Cond Aggravated By Exposure: NONE SPECIFIED BY MANUFACTURER.

First Aid: SKIN:REMOVE CONTAMINATED CLOTHING;WASH WITH WATER.GET MEDICAL ATTENTION IF NEEDED.EYES:FLUSH WITH WATER FOR 15 MINUTES. GET IMMEDIATE MEDICAL ATTENTION.INHAL:REMOVE TO FRESH AIR.GIVE OXYGEN OR ARTIFIC IAL RESPIRATION IF NEEDED.GET IMMEDIATEMEDICAL ATTENTION.INGEST:DO NOT INDUCE VOMITING.GET PROMPT QUALIFIED MEDICAL ATTENTION.IF CONSCIOUS, GIVE MILK,MILK OF MAGNESIA,BEATEN EGGS OR VEGETABLE OIL.

Handling and Disposal

Spill Release Procedures: SWEEP OR VACUUM;DO NOT CREATE DUST;PLACE IN AN APPROPRIATE CONTAINER FOR DISPOSAL.NEUTRALIZE RESIDUE WITH A WEAK ALKALINE SOLUTION AND FLUSH TO A SANITARY SEWER.

Neutralizing Agent: WEAK ALKALINE SOLUTION.

Waste Disposal Methods: DISPOSE OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

Handling And Storage Precautions: STORE IN A COOL, DRY, WELL-VENTILATED PLACE. KEEP CONTAINER CLOSED WHEN NOT IN USE.KEEP AWAY FROM MOISTURE AND INCOMPATIBLE MATERIALS.

Other Precautions: AVOID SKIN AND EYE CONTACT.DO NOT INHALE VAPORS/MISTS.

Fire and Explosion Hazard Information

Flash Point Text: NONE

Autoignition Temp Text: 806F

Extinguishing Media: WATER OR DRY CHEMICAL AS APPROPRIATE FOR COMBUSTIBLES IN AREA. AVOID WATER CONTACT TO MATERIAL IF POSSIBLE.

Fire Fighting Procedures: USE A SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE EQUIPMENT.

Unusual Fire/Explosion Hazard: PRODUCT READILY DISSOLVES IN WATER TO FORM WEAK SULFURIC ACID SOLUTION;PRECAUTIONS FOR EXPOSURE TO SULFURIC ACID SHOULD TAKEN.

Control Measures

Respiratory Protection: WHERE ENVIRONMENTAL CONTROLS ARE LACKING OR IN ENCLOSED SPACES USE A NIOSH/MSHA APPROVED RESPIRATOR FOR NUISSANCE DUST.

Ventilation: LOCAL VENTILATION TO A DUST COLLECTOR IS RECOMMENDED.

Protective Gloves: RUBBER OR NEOPRENE ACID RESISTANT GLOVES

Eye Protection: SAFETY GLASSES OR GOGGLES.

Other Protective Equipment: PROTECTIVE CLOTHING,AS NEEDED.PROVIDE A LOCAL EYE WASH STATION AND SAFETY SHOWER.

Work Hygienic Practices: WASH HANDS.SEPERATE WORK CLOTHES FROM STREET CLOTHES.LAUNDER WORK CLOTHES BEFORE REUSE.KEEP FOOD OUT OF THE WORK AREA.

Supplemental Safety and Health: PRODUCT IS MOISTURE SENSITIVE.

Physical/Chemical Properties

HCC: N1

M.P/F.P Text: 350F,177C
Decomp Text: 806F,430C
Spec Gravity: BULK 83 LB/FT3
Solubility in Water: 100% COMPLETE
Appearance and Odor: OFF-WHITE, BEAD-LIKE, GRANULAR DRY MATERIAL.
Percent Volatiles by Volume: 0

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Reactivity Data
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Stability Indicator: YES
Stability Condition To Avoid: STORE IN DRY AREA TO AVOID MOISTURE CONTACT.
Materials To Avoid: STONG ALKALIS (CAUSTICS), WATER (FORMS H2SO4), BLEACH, AMMONIA.
Hazardous Decomposition Products: NONE UNLESS HEATED OVER 806F AT WHICH PRODUCT
WILL DECOMPOSE GENERATING FULFUR DIOXIDE AND SULFUR TRIOXIDE.
Hazardous Polymerization Indicator: NO

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Toxicological Information
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Ecological Information
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MSDS Transport Information
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=====
Regulatory Information
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Other Information
=====

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Transportation Information
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Responsible Party Cage: 93594
Trans ID NO: 64605
Product ID: SODIUM BISULFATE, ANHYDROUS GLOBULAR, TECHNICAL
MSDS Prepared Date: 09/01/1996
Review Date: 06/25/1998
MFN: 2
Net Unit Weight: 100 LBS
AF MMAC Code: NR
Multiple KIT Number: 0
Review IND: Y
Unit Of Issue: DR
Container QTY: 1
Type Of Container: DRUM
Additional Data: MOISTURE SENSITIVE

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Detail DOT Information
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DOT PSN Code: ZZZ
DOT Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

=====
Detail IMO Information
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IMO PSN Code: ZZZ
IMO Proper Shipping Name: NOT REGULATED FOR THIS MODE OF TRANSPORTATION

=====
Detail IATA Information
=====

IATA PSN Code: ZZZ
IATA Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

=====
Detail AFI Information
=====

AFI PSN Code: ZZZ
AFI Proper Shipping Name: NOT REGULATED BY THIS MODE OF TRANSPORTATION

=====
HAZCOM Label
=====

Product ID: SODIUM BISULFATE, ANHYDROUS GLOBULAR, TECHNICAL
Cage: 93594
Company Name: JONES-HAMILTON CO.
Street: 8400 ENTERPRISE DRIVE
City: NEWARK CA
Zipcode: 94560
Health Emergency Phone: 510-797-2471/510-792-4500
Label Required IND: Y
Date Of Label Review: 06/25/1998
Status Code: C
MFG Label NO: UNKNOWN
Label Date: 06/25/1998
Year Procured: 1997
Origination Code: F
Eye Protection IND: YES
Skin Protection IND: YES
Signal Word: WARNING
Respiratory Protection IND: YES
Health Hazard: Moderate
Contact Hazard: Moderate
Fire Hazard: None
Reactivity Hazard: None
Hazard And Precautions: EYES:MAY CAUSE MILD TO SEVERE IRRITATION.SKIN: MAY
CAUSE MODERATE IRRITATION.INGEST:MAY CAUSE GI TRACT IRRITATION.INHAL: MAY
CAUSE RESPIRATORY IRRITATION. FIRST AID: SKIN:REMOVE CONTAMINATED CLOTHING;
WASH WITH WATER.GET MEDICAL ATTENTION IF NEEDED.EYES:FLUSH WITH WATER FOR 15
MINUTES.GET IMMEDIATE MEDICAL ATTENTION.INHAL:REMOVE TO FRESH AIR.GIVE OXYGEN
OR ARTIFICIAL RESPIRATION IF NEEDED.GET IMMEDIATE MEDICAL
ATTENTION.INGEST:DO NOT INDUCE VOMITING.GET PROMPT QUALIFIED MEDICAL
ATTENTION.IF CONSCIOUS,GIVE MILK,MILK OF MAGNESIA,BEATEN EGGS OR VEGETABLE
OIL.

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and assume responsibility for the suitability of this information to their
particular situation regardless of similarity to a corresponding Department
of Defense or other government situation.

MSDS **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

POTASSIUM DICHROMATE

MSDS Number: P5719 --- *Effective Date: 11/02/01*

1. Product Identification

Synonyms: Dichromic Acid, Dipotassium Salt; Potassium Bichromate; Dipotassium Dichromate

CAS No.: 7778-50-9

Molecular Weight: 294.18

Chemical Formula: K₂Cr₂O₇

Product Codes: J.T. Baker: 3090, 3093, 3094

Mallinckrodt: 6758, 6770, 6772

| Ingredient | CAS No | Percent | Hazardous |
|----------------------|-----------|-----------|-----------|
| Potassium Dichromate | 7778-50-9 | 99 - 100% | Yes |

3. Hazards Identification

Emergency Overview

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE A HARMFUL IF SWALLOWED OR INHALED. AFFECTS THE RESPIRATORY SYSTEM, LIVER, KIDNEYS, EYES, SKIN AND BLOOD. MAY CAUSE ALLERGIC REACTION. CANCER HAZARD. CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 4 - Extreme (Cancer Causing)

Flammability Rating: 0 - None

Reactivity Rating: 3 - Severe (Oxidizer)

Contact Rating: 3 - Severe (Life)

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Yellow (Reactive)

Potential Health Effects

Inhalation:

Corrosive. Extremely destructive to tissues of the mucous membranes and upper respiratory tract. May cause ulceration and perforation of the nasal septum. Symptoms may include sore throat, coughing, shortness of breath, and labored breathing. May produce pulmonary sensitization or

Ingestion:

Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach, leading to death. Can cause sore throat, vomiting, diarrhea. May cause violent gastroenteritis, peripheral vascular collapse, dizziness, intense thirst, muscle cramps, shock, coma, abnormal bleeding, fever, liver damage and acute renal failure.

Skin Contact:

Corrosive. Symptoms of redness, pain, and severe burn can occur. Dusts and strong solutions may cause severe irritation. Contact with broken skin may cause ulcers (chrome sores) and absorption, which may cause systemic poisoning, affecting kidney and liver functions. May cause skin sensitization.

Eye Contact:

Corrosive. Contact can cause blurred vision, redness, pain and severe tissue burns. May cause corneal injury or blindness.

Chronic Exposure:

Repeated or prolonged exposure can cause ulceration and perforation of the nasal septum, respiratory irritation, liver and kidney damage and ulceration of the skin. Ulcerations at first may be painless, but may penetrate to the bone producing "chrome holes." Known to be a human carcinogen.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, asthma, allergies or known sensitization to chromic acid or chromates may be more susceptible to the effects of this material.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated

clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Releases oxygen, upon decomposition, which enhances combustion.

Explosion:

Contact with oxidizable substances may cause extremely violent combustion.

Fire Extinguishing Media:

Flood with large amounts of water. Water spray may be used to keep fire exposed containers cool. Do not allow water runoff to enter sewers or waterways.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Protect against physical damage. Store in a dry location separate from combustible, organic or other readily oxidizable materials. Avoid storage on wood floors. Remove and dispose of any spilled dichromates; do not return to original containers. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL):

- ACGIH Threshold Limit Value (TLV):

For water-soluble Cr(VI) compounds, as Cr = 0.05 mg/m³ (TWA), A1 - confirmed human carcinogen.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Orange-red crystals or powder

Odor:

Odorless.

Solubility:

6.5% @ 10C (50F) in water.

Specific Gravity:

2.676 @ 25C/4C

pH:

4.04 (1% aq. solution) 3.57 (10% aq. solution)

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

500C (932F)

Melting Point:

398C (748F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Burning may produce chrome oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Reducing agents, acetone plus sulfuric acid, boron plus silicon, ethylene glycol, iron, hydrazine, and hydroxylamine. Any combustible, organic or other readily oxidizable material (paper, wood, sulfur, aluminum or plastics).

Conditions to Avoid:

Heat, incompatibles.

11. Toxicological Information

| -----\Cancer Lists\----- | | | |
|----------------------------------|----------------------|-------------|---------------|
| Ingredient | ---NTP Carcinogen--- | | IARC Category |
| | Known | Anticipated | |
| Potassium Dichromate (7778-50-9) | Yes | No | 1 |

12. Ecological Information

Environmental Fate:

When released into the soil, this material may leach into groundwater. When released into water, this material is not expected to evaporate significantly. This material may bioaccumulate to some extent. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent

to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: RQ, OXIDIZING SOLID, CORROSIVE, N.O.S. (POTASSIUM DICHROMATE)

Hazard Class: 5.1, 8

UN/NA: UN3085

Packing Group: II

Information reported for product/size: 400LB

International (Water, I.M.O.)

Proper Shipping Name: OXIDIZING SOLID, CORROSIVE, N.O.S. (POTASSIUM DICHROMATE)

Hazard Class: 5.1, 8

UN/NA: UN3085

Packing Group: II

Information reported for product/size: 400LB

15. Regulatory Information

| -----\Chemical Inventory Status - Part 1\----- | | | | |
|--|------|-----|-------|-----------|
| Ingredient | TSCA | EC | Japan | Australia |
| Potassium Dichromate (7778-50-9) | Yes | Yes | Yes | Yes |

| -----\Chemical Inventory Status - Part 2\----- | | | | |
|--|-------|-----|--------------------|-------|
| Ingredient | Korea | DSL | --Canada-- NDSL | Phil. |
| Potassium Dichromate (7778-50-9) | Yes | Yes | No | Yes |

| -----\Federal, State & International Regulations - Part 1\----- | | | | |
|---|------------|-----|------|------------------------------|
| Ingredient | -SARA 302- | TPQ | List | -SARA 313- Chemical Catg. |
| Potassium Dichromate (7778-50-9) | No | No | No | Chromium com |

| -----\Federal, State & International Regulations - Part 2\----- | | | |
|---|--------|------------------|-----------------|
| Ingredient | CERCLA | -RCRA- 261.33 | -TSCA- 8 (d) |
| Potassium Dichromate (7778-50-9) | 10 | No | No |

Chemical Weapons Convention: No TSCA 12(b): Yes CDTA: Yes
 SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
 Reactivity: Yes (Pure / Solid)

WARNING:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

Australian Hazchem Code: 1WE

Poison Schedule: S6

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **1** Reactivity: **1** Other: **Oxidizer**

Label Hazard Warning:

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE A

HARMFUL IF SWALLOWED OR INHALED. AFFECTS THE RESPIRATORY SYSTEM, LIVER, KIDNEYS, EYES, SKIN AND BLOOD. MAY CAUSE ALLERGIC REACTION. CANCER HAZARD. CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure.

Label Precautions:

Keep from contact with clothing and other combustible materials.

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

Do not breathe dust or mist from solutions.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Store in a tightly closed container.

Do not store near combustible materials.

Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 8.

Disclaimer:

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Prepared by: Environmental Health & Safety
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