

FORMULARY PHOTOGRAPHERS' FORMULARY

FORMULARY CHROMIUM INTENSIFIER CATALOG NUMBER 05-0065 TO MAKE 11 LITERS

The chemicals contained in this kit are used to prepare an intensifier that is equivalent to Kodak IN-4. The amount of intensification is somewhat proportional to the amount of silver originally present in the negative. The intensified image is stable, has greater contrast and can be toned.

The intensifier is used in room light. After using the intensifier the negative must be redeveloped in a fast acting print developer such as undiluted Dektol, Formulary F-130 or Formulary BW-65. After negative has been redeveloped it must be fixed again and washed.

FOR YOUR CHEMICAL SAFETY

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

Potassium Dichromate: is both toxic and an oxidizer and can cause both eye and skin burns. The dust can cause allergic skin reactions and irritation. All chromium salt compounds are potential carcinogens. You must use all chemicals with care, and use eye goggles, dust mask, apron and rubber gloves when mixing and using Dichromate solutions.

All other chemicals contained in this kit are considered non-hazardous, but we ask you to still use care by using a dust mask and rubber gloves.

The user assumes all risks upon accepting these chemicals. IF FOR ANY REASON YOU DO NOT WANT TO ASSUME ALL RISKS PLEASE RETURN THE KIT WITHIN THIRTY (30) DAYS FOR A FULL REFUND.

Consult with local sewer and water authorities regarding proper disposal of darkroom chemicals in your area.

MIXING THE STOCK SOLUTION

The chemicals in this kit are used to prepare one concentrated stock solution which is diluted to working solution as needed.

TO MAKE STOCK SOLUTION	ADD
Distilled water (100° F)	800 ml
Packet A	
Packet B	
Distilled water (68° F) to make	1000 ml

Empty content of Packet A in 800 ml of water at 100° F. Mix well until all of the chemistry is dissolved. Empty contents of Packet B into above solution. Mix well until all chemistry is dissolved into solution.

Add water to make 1000 ml. Place into 1000 ml bottle and mark bottle Formulary Chromium Intensifier Stock Solution.

Mix only what you need. Take 1 part of stock solution to 10 parts water. Example: 10 ml stock solution mixed with 100 ml water makes working solution.

HINTS ON USE

The following steps can be carried out under artificial light or subdued daylight.

1. Make sure the negative has been well washed first. If using a dry negative soak in water 10 minutes. Treat only one negative at a time.
2. Immerse negative in working solution, which is a bleach bath, for 8 to 10 minutes with agitation at (70° F). Discard solution.
3. Rinse negative in running water or tray with continuous agitation for 5 minutes.
4. Redevelop in a non-staining print developer such as Dektol, Formulary F-130 or Formulary BW-65 for 8 to 10 minutes or until image has blackened completely. Do not use developers containing a high concentration of sulfite such as D-76, Microdol X, or other fine grain developers.
5. After redevelopment wash in running water for 1 minute.
6. Fix for 3-4 minutes.
7. Wash in running water for 10 minutes.
8. Hang to dry.

Note: Greater intensification can be obtained by repeating process if desired.

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086
PROD NO : 344820

PHOTOGRAPHERS FORMULARY
CALL IN ADVANCE TO MEET
7079 HWY 83 N.
BOX 89
CONDON ,MT 59826

UNIVAR USA INC. (425)889-3400
6100 CARILLON POINT , KIRKLAND , WA 98033

----- EMERGENCY ASSISTANCE -----

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

PRODUCT IDENTIFICATION

PRODUCT NAME: SODIUM BISULFATE
MSDS#: P12108VS
DATE ISSUED: 03/01/2004
SUPERSEDES: 03/05/2002
ISSUED BY: 008548

MATERIAL SAFETY DATA SHEET

JONES-HAMILTON CO.
8400 Enterprise Drive, Newark, CA 94560-33 10 (510) 797-2471

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sodium acid sulfate food grade Product Code: SAS01
Synonyms: Sodium bisulfate Bisulfate of soda, Sodium hydrogen sulfate,
Nitrate cake
Product Use: Flavor enhancement, pH adjustment

Date of MSDS Preparation: March 2004

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086

PROD NO : 344820

Manufacturer's Jones-Hamilton Co. 24-Hour Emergency Phone Numbers (U.S.A.):

Name/Address: 8400 Enterprise Drive California: (510) 797-2471

Newark, CA 94560

Ohio: (419) 666-9838

-or-

CHENTREC: (800) 424-9300

30354 Tracy Road

Walbridge, OH 43465

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Formula: NaHSO4

Component	CAS#	% (by weight)	Exposure Limits
Specially processed Sodium acid sulfate	7681-38-1	91.5-94.7	None established
Sodium sulfate	7757-82-6	4.8-8.0	None established
Moisture	7732-18-5	0.1-0.8	None established

OSHA:

This material is classified as an irritant under current OSHA regulations.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Off-white granular material, with the consistency of salt.

Presents little or no hazard if spilled and no unusual hazard if involved in a fire or explosion.

Potential Health Effects:

EYE:

Causes mild to severe irritation. May cause burn if not flushed with water.

SKIN:

Prolonged exposure may cause moderate irritation. May cause burn if not flushed with water.

INHALATION:

Inhalation of dust may irritate or burn nose, throat and lungs.

INGESTION:

Small amounts (tablespoonful) swallowed are not likely to cause injury; however, swallowing large amounts may irritate or burn digestive tract.

CHRONIC (CANCER) INFORMATION:

Not known to cause cancer. Not listed as carcinogen by IARC, NTP or OSHA.

TERATOLOGY (BIRTH DEFECT) INFORMATION:

No data available.

REPRODUCTION INFORMATION:

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086

PROD NO : 344820

No data available.

POTENTIAL ENVIRONMENTAL EFFECTS:

Material in dry form is not hazardous to the environment. However, readily dissolves in water to form a weak acid solution. Therefore, keep out of streams and ditches.

SECTION 4 FIRST AID MEASURES

NOTE TO PHYSICIAN:

Supportive care. Treatment based on judgment of the physician in response to reactions of the patient. May aggravate pre-existing respiratory conditions.

EYES:

Immediately flush eyes with water for at least 15 minutes, lifting eyelids to thoroughly flush. If redness or irritation persists, get prompt medical attention.

SKIN:

Immediately flush affected area with water for at least 15 minutes. If burn occurs, seek immediate medical attention.

INHALATION:

Remove to fresh air. If irritation or discomfort persists, seek medical attention.

INGESTION:

If large amounts are ingested (greater than tablespoonful), drink large quantities of milk or water. Follow with Milk of Magnesia, beaten eggs or vegetable oil. DO NOT induce vomiting. Contact Physician immediately.

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Not applicable. Material will not burn.

FLAMMABLE LIMITS: Not applicable. Material is non-combustible.

EXTINGUISHING MEDIA:

Use extinguishing media appropriate for surrounding fire. Because material will readily dissolve in water to form a weak acid solution, avoid water contact with material if possible.

HAZARDOUS COMBUSTION PRODUCTS:

At temperatures over 806 F (430 C), product will decompose generating oxides of sulfur.

FIRE FIGHTING INSTRUCTIONS:

Product readily dissolves in water to form a weak acid solution. If using

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086

PROD NO : 344820

water, wear acid protective equipment. No gases or toxic fumes are emitted from this reaction. However, if elevated temperatures (> 806 F) are reached, self-contained breathing apparatus should be worn.

SECTION 6 ACCIDENTAL RELEASE MEASURES

LAND SPILL:

Vacuum or shovel material and place in disposal container. Avoid excessive dust generation. Dilute residual material with ample supply of water and direct to sanitary sewer if Federal, State or Local regulations permit.

WATER SPILL:

Readily dissolves in water to form a weak acid solution. If water is isolated or can be contained, neutralize with weak alkaline solution.

Notify appropriate authorities if required by regulations.

SECTION 7 HANDLING AND STORAGE

HANDLING:

Wear all recommended personal protective clothing when handling. Avoid contact with eyes. Wash thoroughly after handling. Minimize dust generation. Avoid breathing dust.

STORAGE:

Material is hygroscopic and will readily absorb moisture. Keep containers tightly closed. DO NOT store where exposed to moist conditions. DO NOT store near strong alkalis.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide general and/or local exhaust ventilation to maintain airborne particulate below nuisance levels (>10 mg/m³).

RESPIRATORY PROTECTION:

In dusty atmospheres (>10 mg/m³), use a NIOSH-approved dust respirator.

SKIN PROTECTION: Rubber gloves and cotton-blend coveralls.

EYE PROTECTION: Safety glasses or goggles.

GENERAL HYGIENE CONSIDERATIONS:

There are no known health hazards associated with this material when used as recommended. Follow good industrial hygiene practices including but not limited to: (1) wash hands after use and before eating; (2) avoid breathing dust; and (3) wear safety glasses.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086

PROD NO : 344820

APPEARANCE: Off-white granular material.
ODOR: Fresh to Pungent
PHYSICAL STATE: Dry (anhydrous) crystalline solid
SOLUBILITY: 1080 g/l @ 68 F (20 C) spherical shape beads
MOLECULAR FORMULA: NaHSO4
PARTICLE SIZE: +-0.75 mm diameter
BULK DENSITY: 80 - 85 lbs/ft3 (loose)
MELTING POINT: 350 F (177 C)
PERCENT VOLATILE: Non-volatile
MOLECULAR WEIGHT: 120

SECTION 10 STABILITY AND REACTIVITY

STABILITY:

Stable.

INCOMPATIBILITY:

Avoid contact with strong alkaline material such as caustic. Dissolves readily in water to form a weak acid solution.

DO NOT MIX with liquid chlorine bleach, ammonia cleansers or similar products.

CONDITIONS TO AVOID:

DO NOT store dry product where exposed to moist conditions.

HAZARDOUS DECOMPOSITION PRODUCTS:

Only if heated over 806 F (430 C), at which sulfur dioxide and sulfur trioxide are formed.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

REPORTED HUMAN EFFECTS:

No human data are available for this product.

REPORTED ANIMAL EFFECTS: Oral - LD50 (rat) 2800 mg/kg.

Skin irritation - This material is neither corrosive nor destructive to the skin of New Zealand rabbits. Occasionally, a very slight rash may appear.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

This product readily dissolves in water to form a weak acid solution. A 0.05

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086

PROD NO : 344820

percent or greater (by weight) solution of this product will likely be acutely harmful to fish and other water organisms.

CHEMICAL FATE INFORMATION:

Material will decompose in soil. Studies show that there are no adverse effects of applying the main ingredient in this product (sodium acid sulfate) directly to crops. In fact, there are existing products on the market that use sodium acid sulfate as a soil additive to improve crop production. However, do not apply excessive quantities to soil.

SECTION 13 DISPOSAL CONSIDERATIONS

If this product as supplied becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA), 40 CFR Part 261. Dispose of in accordance with local, State and Federal laws and regulations.

SECTION 14 TRANSPORT INFORMATION

DOMESTIC (Land, Department of Transportation): Not regulated.

International (Water, IMO): Not regulated.
International (Air, ICAO & IATA): Not regulated.
Shipment in Canada: Not regulated.
Surface Shipments in Europe: Not regulated.

SECTION 15 REGULATORY INFORMATION

OSHA:

This product is classified as an Irritant by definition of Hazard Communication Standard (29 CFR 1910.1200).

HMS(R) Rating: Health - 1; Flammability - 0; Physical Hazard - 0

GHS Rating: Health - 1; Flammability - 0; Reactivity - 1;
Special Precautions - None

TSCA:

All chemical substances in this product are listed in U.S. TSCA Section 8(b) Inventory.

RCRA (RQ):

This product contains no Hazardous Substances listed in 40 CFR Part 302.

RCRA Title III: Section 311/312 Hazard Class - Acute.

This product contains NONE of the substances subject to the reporting requirements of Section 313 (40 CFR Part 372).

REPORT NUMBER: 703

UNIVAR USA INC.

PAGE: 007

MSDS NO: P12108VS

MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 07/20/04

VERSION: 010

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086

PROD NO : 344820

California Proposition 65:

This product does not contain any ingredient known to the State of California to cause cancer or reproductive toxicity as listed under the Safe Drinking Water and Toxic Enforcement Act of 1986.

New Jersey:

Department of Health RTK List - sn 1704.

Special Hazardous Substances - Corrosive

Australia:

List of Designated Hazardous Substances - Corrosive (R34), Harmful (R37)

Canada - WHMIS:

Controlled Product Hazard Class D2B. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Canada - CEPA:

All components of this product are on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.

European Union (EU): Dangerous Substances (Annex I)

- EC No. 231-665-7

- Labels: Xi (Irritant)

- Risk Phrases: R41

- Safety Phrases: S(2-)24-26

Germany: Water Classification (VwVwS) - Water Hazard Class: 1

Switzerland: Toxic Substance Classification - Giftklasse 3

Inventories:

Australian Inventory of Chemical Substances;

China; European Industry of Existing Commercial Chemical Substances

(231-665-7); European Union Inventory of Cosmetic Ingredients,

Other Ingredients; ICCA High Production Volume Working List; Japan Existing and New Chemical Substances (1-83, 1-491, 1-501); Korea Existing and Evaluated Chemical Substances (KE-31481); Philippines Inventory of Chemicals and Chemical Substances; OECD List of High Production Volume Chemicals.

SECTION 16 OTHER INFORMATION

MSDS PREPARED BY:

Ray Hahn

Corporate Manager - Environmental, Safety & Security

PRODUCT: SODIUM BISULFATE

ORDER NO: 226086
PRD NO : 344820

MSDS: SAS01 Revision: 2
Issue Date: 3/23/04

----- FOR ADDITIONAL INFORMATION -----

CONTACT: MSDS COORDINATOR UNIVAR USA INC.
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

10/12/04 07:26 PRODUCT: 344820 CUST NO: 113365 ORDER NO: 226086

----- NOTICE -----

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PROCESS.

*** END OF MSDS ***



10-1000
COLUMBUS CHEMICAL INDUSTRIES INC.

P.O. BOX 8
COLUMBUS, WISCONSIN 53925-0008
(920) 623-2140
FAX (920) 623-2577

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (as Used on Label and List)

Potassium Dichromate

Note: Blank spaces are not permitted. If any item is not applicable or no information is available, the space must be marked to indicate that.

Section I

Manufacturers /Distributor Address Number Street City State and Zip Code

Columbus Chemical Industries, Inc.

N4335 Temkin Road

Columbus, Wisconsin 53925

Emergency Telephone Number

CHEMTREC: 1 (800) 424-9300

Telephone Number for Information

1 (920) 623-2140

Date Prepared

04-26-2005

Signature of Preparer (optional)

Section II - Hazardous Ingredients/Identity Information

Hazardous Components

(Specific Chemical Identity, Common Name(s))

CAS #

OSHA PEL

ACGIH TLV

Other Limits

Recommended

% (optional)

Potassium Dichromate* **

7778-50-9

0.1 mg/m³

0.05 mg/m³

0.001 mg/m³

as CrO₃

as Cr

REL 10hr

*Subject to SARA Section 313 Reporting Requirements.

** Synonyms: Potassium Bichromate, Bichromate of Potash

Section III - Physical/Chemical Characteristics

Boiling Point

500°C(932°F)

Specific Gravity (H₂O = 1)

Not available

Vapor Pressure (mm Hg)

Not available

Melting Point

398°C(748°F)

Vapor Density (AIR = 1)

Not available

Evaporation Rate (Butyl Acetate = 1)

Not available

Solubility in Water

Soluble, 10.5% w/w @ 20°C

Appearance and Odor

Orange-red, odorless solid

Section IV Fire and Explosion Hazard Data

Flash Point (Method Used)

Nonflammable

Flammable Limits

LEL

UEL

Not applicable

Not applicable

Extinguishing Media

Suitable to extinguish the supporting flame. Water spray, dry chemical, carbon dioxide, alcohol foam.

Special Fire Fighting Procedures

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

Unusual Fire and Explosion Hazards

May emit toxic fumes under fire conditions. Oxidizer. Reacts explosively with Hydrazine and anhydrous Hydroxylamine

Section V Reactivity Data

Stability	Unstable		Conditions to Avoid	Incompatibles.
	Stable	X		

Incompatibility Materials to Avoid

Reducing agents, combustible materials, organic materials, acids, metals and alkalis.

Hazardous Decomposition or Byproducts

Potassium, potassium oxide.

Hazardous Polymerization

	May Occur		Conditions to Avoid	None
	Will Not Occur	X		

Section VI Health Hazard Data

Routes of Entry	Inhalation ?	Skin ?	Ingestion ?
	Yes	Yes	Yes

Health Hazards (Acute and Chronic)

Skin: Corrosive, permeator, sensitizer. Eyes: severe corrosive, may cause permanent corneal damage. Inhalation:

corrosive, prolonged inhalation may cause asthma. May result in impaired kidney and liver function. Ingestion:

Causes severe irritation, This material is a known carcinogen.

Carcinogenicity	NTP	IARC Monographs	OSHA REGULATED?
	Known	Known Group 1	Chromium

Signs and Symptoms of Exposure.

Burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, erythema, blisters,

tissue destruction, bloody diarrhea, edema, convulsions, bronchitis, pneumonia, cardiovascular collapse, shock and death.

Medical Conditions Generally Aggravated by Exposure

Asthma, emphysema, other respiratory diseases.

Emergency and First Aid Procedures

EYES/SKIN: Flush immediately with plenty of water for at least 15 minutes. Remove

contaminated clothing. Remove contact lenses if possible. Call physician if irritation develops. Wash clothing

before reuse. **INGESTION:** DO NOT induce vomiting. Give several cups of water to conscious victim. Call a physician.

INHALATION: Move to fresh air. Give oxygen if breathing is difficult, artificial respiration if not breathing.

Section VII Precautions for Safe Handling and Use**Steps to be Taken in Case Material is Released or Spilled**

Evacuate unprotected personnel from area. Ventilate spill area. Wear self-contained

breathing apparatus, rubber boots, heavy protective gloves and chemical safety goggles. Dampen spilled material to

avoid creating dust. Sweep up and place in non combustible container. Flush spill area with water.

Waste Disposal Method Dispose in accordance with all applicable Federal, state and local regulations.

Precautions to be Taken in Handling and Storing

Keep container tightly closed. Store in corrosion-proof area. Do not get in eyes or on skin or clothing. Do not taste or swallow. Avoid breathing dust. Use only with adequate ventilation. Wash thoroughly after handling. Separate from combustible materials.

Other Precautions Do not get in eyes, on clothing. Do not breathe vapor. Use with adequate ventilation. Containers, even

when empty, will retain residue. Always obey hazard warnings and handle empty containers as if they were full.

Section VII Control Measures**Respiratory Protection (Specify Type)**

NIOSH/MSHA approved dust/mist respirator.

Ventilation

Local Exhaust Recommended to control dust.

Special Eye-wash station nearby.

Mechanical (General) Recommended.

other Safety shower nearby.

Protective Gloves Rubber gloves.

Eye Protection Safety goggles

Other Protective Clothing or Equipment Lab coat or apron and rubber boots. Face-shield recommended.

Work Hygienic Practices Wash exposed areas thoroughly after handling. Wash contaminated clothing before reuse.

Do NOT wear contact lenses. Wear appropriate personal protective equipment. Oxidizer! Avoid contact with

eyes, skin and clothing. Avoid prolonged or repeated exposure. **CARCINOGEN!!**

Columbus Chemical Industries, Inc. ("Columbus") believes that the information herein is factual but it is not intended to be all inclusive. The information relates only to the specific Material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because Columbus has no continuing control over the Material, those handling, storing or using the Material should satisfy themselves that they have current information regarding the particular way the Material is handled, stored and used and that the same is done in accordance with federal, state and local law. COLUMBUS MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING (WITHOUT LIMITATION) WARRANTIES WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN OR WITH RESPECT TO FITNESS FOR ANY PARTICULAR USE.



GARDENA, CA
NEW BRUNSWICK, NJ

Material Safety Data Sheet

NFWA	HMIS	Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">0</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	1	Fire Hazard	0	Reactivity	0	
Health Hazard	1							
Fire Hazard	0							
Reactivity	0							
See Section 15.								

Section 1. Chemical Product and Company Identification		Page Number: 1
Common Name/ Trade Name	Sodium chloride	Catalog Number(s) S1529, S1240, S1241, S1247, S1249, SO155, SO160, YY879, YY670, YY602
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# 7647-14-5
Commercial Name(s)	Not available.	RTECS VZ4725000
Synonym	Salt; Sea Salt	TSCA TSCA 8(b) inventory: Sodium chloride
Chemical Name	Sodium chloride	CI# Not applicable.
Chemical Family	Chloride salt. (Salt.)	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	NaCl	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
		<i>Exposure Limits</i>			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Sodium chloride	7647-14-5				100
Toxicological Data on Ingredients	Sodium chloride: ORAL (LD50): Acute: 3000 mg/kg [Rat]. 4000 mg/kg [Mouse]. DERMAL (LD50): Acute: >10000 mg/kg [Rabbit]. DUST (LC50): Acute: >42000 mg/m ³ 1 hours [Rat].				

Section 3. Hazards Identification	
Potential Acute Health Effects	Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.
Potential Chronic Health Effects	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin Contact	Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
Serious Skin Contact	Not available.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.
Serious Inhalation	Not available.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
Flammable Limits	Not applicable.
Products of Combustion	Not available.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	Not applicable.
Special Remarks on Fire Hazards	When heated to decomposition it emits toxic fumes.
Special Remarks on Explosion Hazards	Electrolysis of sodium chloride in presence of nitrogenous compounds to produce chlorine may lead to formation of explosive nitrogen trichloride. Potentially explosive reaction with dichloromaleic anhydride + urea.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill	Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7. Handling and Storage

Precautions	Keep locked up.. Do not ingest. Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic

Section 8. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Solid crystalline powder.)	Odor	Slight.
Molecular Weight	58.44 g/mole	Taste	Saline.
pH (1% soln/water)	7 [Neutral.]	Color	White.
Boiling Point	1413°C (2575.4°F)		
Melting Point	801°C (1473.8°F)		
Critical Temperature	Not available.		
Specific Gravity	2.165 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in cold water, hot water. Soluble in glycerol, and ammonia. Very slightly soluble in alcohol. Insoluble in Hydrochloric Acid.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Incompatible materials, high temperatures.
Incompatibility with various substances	Reactive with oxidizing agents, metals, acids.
Corrosivity	Not considered to be corrosive for metals and glass.
Special Remarks on Reactivity	Hygroscopic. Reacts with most nonnoble metals such as iron or steel, building materials (such as cement) Sodium chloride is rapidly attacked by bromine trifluoride. Violent reaction with lithium.
Special Remarks on Corrosivity	Not available.
Polymerization	Will not occur.

Continued on Next Page

Section 11. Toxicological Information

Routes of Entry	Inhalation. Ingestion.
Toxicity to Animals	WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3000 mg/kg [Rat]. Acute dermal toxicity (LD50): >10000 mg/kg [Rabbit]. Acute toxicity of the dust (LC50): >42000 mg/m ³ 1 hours [Rat].
Chronic Effects on Humans	MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
Other Toxic Effects on Humans	Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals	Lowest Published Lethal Dose (LDL) [Man] - Route: Oral; Dose: 1000 mg/kg
Special Remarks on Chronic Effects on Humans	Causes adverse reproductive effects in humans (fetotoxicity, abortion,) by intraplacental route. High intake of sodium chloride, whether from occupational exposure or in the diet, may increase risk of TOXEMIA OF PREGNANCY in susceptible women (Bishop, 1978). Hypertonic sodium chloride solutions have been used to induce abortion in late pregnancy by direct infusion into the uterus (Brown et al, 1972), but this route of administration is not relevant to occupational exposures. May cause adverse reproductive effects and birth defects in animals, particularly rats and mice (fetotoxicity, abortion, musculoskeletal abnormalities, and maternal effects (effects on ovaries, fallopian tubes) by oral, intraperitoneal, intraplacental, intrauterine, parenteral, and subcutaneous routes. While sodium chloride has been used as a negative control in some reproductive studies, it has also been used as an example that almost any chemical can cause birth defects in experimental animals if studied under the right conditions (Nishimura & Miyamoto, 1969). In experimental animals, sodium chloride has caused delayed effects on newborns, has been fetotoxic, and has caused birth defects and abortions in rats and mice (RTECS, 1997). May affect genetic material (mutagenic)
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: Causes eye irritation. Ingestion: Ingestion of large quantities can irritate the stomach (as in overuse of salt tablets) with nausea and vomiting. May affect behavior (muscle spasticity/contraction, somnolence), sense organs, metabolism, and cardiovascular system. Continued exposure may produce dehydration, internal organ congestion, and coma. Inhalation: Material is irritating to mucous membranes and upper respiratory tract.

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The product itself and its products of degradation are not toxic.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations

Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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Section 14. Transport Information

DOT Classification Not a DOT controlled material (United States).

Identification Not applicable.

Special Provisions for Transport Not applicable.

DOT (Pictograms)



Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations TSCA 8(b) inventory: Sodium chloride

California Proposition 65 Warnings California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

Other Regulations EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications

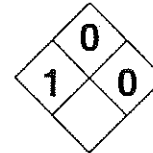
WHMIS (Canada) Not controlled under WHMIS (Canada).
DSCL (EEC) R40- Possible risks of irreversible effects. S24/25- Avoid contact with skin and eyes.

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	E

National Fire Protection Association (U.S.A.)

Health



Flammability

Reactivity

Specific hazard

WHMIS (Canada) (Pictograms)



DSCL (Europe) (Pictograms)



TDG (Canada) (Pictograms)



ADR (Europe) (Pictograms)



Protective Equipment



Gloves.



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent.



Splash goggles.

Section 16. Other Information

MSDS Code S3810

References

- Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987.
- SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.
- The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

Other Special Considerations Not available.

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Verified by Sonia Owen.

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CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.