

CAT. NUMBER 01-0120 - TO MAKE 5 LITERS
CAT. NUMBER 01-0130 - TO MAKE 10 LITERS

PHOTOGRAPHERS' FORMULARY

FORMULARY ABC PYRO FILM DEVELOPER

This is a classic formula that uses pyrogallol as the developing agent and is similar to Kodak D-1 and Ansco 45. Formulary ABC Pyro is designed for large format use and produces negatives with normal to low contrast. The grain is low and acutance high. The negatives have beautiful scale and gradation; however, there is a loss of about 1/2 stop in film speed.

This developer requires a non acidic fixer to be used, such as our TF-4 Archival Rapid Fix or Formulary Fixer 24. Acid fixers will bleach the desired pyrogallol stain.

The chemicals in the kit are used to make three stock solutions which are combined and diluted to make the working solution. A 1 liter kit yields 10 liters of working solution. The shelf life of the stock solutions is six months. The working solution is used once and then discarded.

CHEMICALS CONTAINED IN THIS KIT

Chemical	1/2 liter kit	1 liter kit
Sodium Bisulfite	5 g	10 g
Pyrogallol	30 g	60 g
Potassium Bromide	0.5 g	1.1 g
Sodium Sulfite	52.5 g	105 g
Sodium Carbonate	42.5 g	85 g

FOR YOUR CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the warning on each package. There is one chemical in your kit that needs special attention: Pyrogallol.

PYROGALLOL is a phenol and thus has the potential to cause chemical burns. To be on the safe side, use rubber gloves and clean your work area and equipment with excessive amounts of soap and water. If pyrogallol (solid or in solution) should come into contact with your skin, wash the area with water followed by soap and water. Brief skin contact produces a dark stain which is not a chemical burn. Prolonged skin contact does produce a chemical burn, which closely resembles a heat burn. Pyrogallol is also a poison. When using solid pyrogallol, do not inhale its dust.

The user assumes all risks upon accepting these chemicals. IF FOR ANY REASON YOU DO WISH TO ASSUME ALL RISKS, PLEASE RETURN THE CHEMICALS WITHIN 30 DAYS FOR A FULL REFUND.

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

MIXING THE STOCK SOLUTIONS

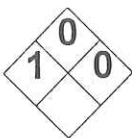

You will need three storage bottles, one of which should be brown, each with a capacity of 500 ml or 1 liter depending upon the kit's size. To mix the solutions, you will also need a mixing bowl and a graduated cylinder or other measuring device.

We recommend you wear a dust mask, splash goggles, rubber gloves and a rubber apron anytime you are mixing dry chemicals.

STOCK SOLUTION A

Chemical	1/2 liter kit	1 liter kit
Distilled water (48° C/120° F)	375 ml	750 ml

Material Safety Data Sheet

NFPA	HMIS		Personal Protective Equipment
	Health Hazard	3	 See Section 15.
	Fire Hazard	0	
	Reactivity	0	

Section 1. Chemical Product and Company Identification			
Common Name/ Trade Name	Sodium bisulfite	Code	S3700
		CAS#	7631-90-5
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248-9985	RTECS	VZ2000000
		TSCA	On the TSCA list.
Commercial Name(s)	Not available	CI#	Not available.
Synonym	Not available.	In case of emergency CHEMTREC (24hr) 800-424-9300 Emergency phone: (310) 516-8000	
Chemical Name			
Chemical Family	Not available.		
Chemical Formula	NaHSO ₃		
Supplier	SPECTRUM QUALITY PRODUCTS 14422 S. SAN PEDRO STREET GARDENA, CA 90248-9985		

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	
Sodium bisulfite	7631-90-5				100	
Toxicological Data on Ingredients	Sodium bisulfite:					

Section 3. Hazards Identification	
Potential Acute Health Effects	Very dangerous in case of skin contact. Very dangerous in case of eye contact (irritant), of in case of contact (corrosive, permeator). Co on length of contact. Eye contact produce inflammation and blistering or respiratory tract, characterized by burning. Severe over-exposure can produce lung damage, choking, unconsciousness. Repeated skin upon contact.
Potential Chronic	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. Toxicity of the product to the reproductive system: Not available. Repeated

MASTER
 updated
 11-1-07

Health Effects

exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. COLD water may be used. DO NOT use an eye ointment. Seek medical attention.
Skin Contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. COLD water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Hazardous Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
Hazardous Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	DO NOT induce vomiting. Have conscious person drink several glasses of water or milk. Seek immediate medical attention.
Hazardous Ingestion	DO NOT induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

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 applicable.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion 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. No specific information is available in our database regarding the product's risks of explosion in the presence of various materials.
Fire Fighting Media and Instructions	Non-flammable.
Special Remarks on Fire Hazards	No additional remark.
Special Remarks on Explosion Hazards	No additional remark.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Corrosive solid. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7. Handling and Storage

Precautions	Keep container dry. DO NOT breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes.
Storage	Corrosive materials should be stored in a separate safety storage cabinet or room.

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. Synthetic apron. Vapor and dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Gloves (impervious). Wear appropriate respirator when ventilation is inadequate.
Personal	Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing

Protection in
Case of a
Large Spill

not be sufficient; consult a specialist BEFORE handling this product.

Exposure
Limits

TWA: 5 (mg/m) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	Odor	Not available.
Molecular Weight	104.07	Taste	Not available.
pH (1% soln/water)	Not available.	Color	Not available.
Boiling Point	Not available.		
Melting Point	Decomposes.		
Critical Temperature	Not available.		
Specific Gravity	1.48 (Water = 1)		
Vapor Pressure	Not available.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	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.]		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	No specific information is available in our database regarding the reactivity of this material in presence of various other materials.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	No additional remark.
Special Remarks on Corrosivity	No additional remark.

Section 11. Toxicological Information

Routes of Entry Ingestion. Inhalation.

Toxicity to Animals Acute oral toxicity (LD50): 2000 mg/kg (Rat).

Chronic Effects on Humans Toxicity of the product to the reproductive system: Not available.

Other Toxic Effects on Humans Very dangerous in case of skin contact (irritant), of ingestion. Slightly dangerous to dangerous in case of eye contact (irritant), of inhalation. Very slightly to slightly dangerous in case of skin contact (corrosive, permeator).

Special Remarks on Toxicity to Animals No additional remark.

Special Remarks on Chronic Effects on Humans No additional remark.

Special Remarks on other Toxic Effects on Humans No additional remark.

Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Products of Biodegradation Some metallic oxides.

Toxicity of the Products of Biodegradation The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation No additional remark.

Section 13. Disposal Considerations

Waste Disposal Recycle to process, if possible. Consult your local or regional authorities.

Section 14. Transport Information

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

Identification Not applicable (PIN and PG).

Special Provisions for Transport Not applicable.

DOT (Pictograms)

Section 15. Other Regulatory Information and Pictograms

**Federal and
State Regulations**

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are:

NONE

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual report release of toxic chemicals that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are:

NONE

WARNING: This product contains a chemical known to the State of California to cause cancer. Chemical ingredient(s) requiring this warning:

NONE

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Chemical ingredient(s) requiring this warning: NONE

Other Classifications

WHMIS (Canada)

DSCL (EEC)

Other Classifications

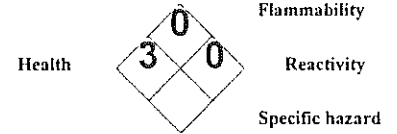
WHMIS (Canada)

DSCL (EEC)

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	

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



Personal Protective Equipment



Protective Gloves (impervious).



Synthetic apron.



Vapor and dust respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information

References Not available.

Catalog Number(s) S1172, S1173

Other Special Considerations No additional remark.

Validated by E. Brull on 12/17/96.

Verified by E. Brull.
Name

Emergency Phone: Number: 10

Notice to Reader Emergency phone: (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 Chemical Mfg. Corp. assumes no responsibility for the completeness or accuracy of the information contained herein.

Material Safety Data Sheet PYROGALLIC ACID

ACETO CORPORATION

One Hollow Lane
Lake Success, NY 11042-1215
Phone: (516) 627-6000 Fax: (516) 627-6093

DATE PREPARED:.....JUNE 1998
REVISION DATE: FEBRUARY 1999
REVISED BY: SIMONE YEARWOOD
CHEMTREC:800-424-9300
PRODUCT NUMBER:33201-2

SECTION 1 - IDENTIFICATION

PRODUCT NAME:PYROGALLIC ACID
SYNONYMS:1,2,3-BENZENETRIOL; TRIHYDROXYBENZENE; PYROGALLOL
FORMULA:C₆H₆O₃
CAS NUMBER:87-66-1

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER
Pyrogalllic Acid	87-66-1

SECTION 3 - HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

..... White to off-white crystalline powder.
..... Severe irritant.
..... Toxic.
..... Can cause cyanosis (a bluish discoloration of skin).
..... May cause skin sensitization.

POTENTIAL HEALTH EFFECTS:

..... Inhalation: Harmful by inhalation. High concentrations are extremely destructive to tissues of the mucous membranes and upper respiratory tract.
..... Eye Contact: Material causes eye irritation. High concentrations are extremely destructive to tissues of the eye.
..... Skin Contact: Harmful by skin absorption. Material causes skin irritation. High concentrations are extremely destructive to tissues of the skin. Absorption into the body leads to the formation of methemoglobin which in sufficient concentrations causes cyanosis (a bluish discoloration of skin).
..... Ingestion: Harmful by ingestion.

Material Safety Data Sheet PYROGALLIC ACID

Overview: Harmful by inhalation, ingestion, or skin absorption. High concentrations are extremely destructive to tissues of the eyes, skin, mucous membranes and upper respiratory tract. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Absorption into the body leads to the formation of methemoglobin which in sufficient concentrations causes cyanosis. Onset may be delayed 2 to 4 hours or longer. May cause allergic skin reaction. Severe irritant. Toxic. Pyrogallol acid has a tremendous affinity for oxygen of the blood causing death by respiratory failure. Intoxication signs are vomiting, hypothermia, weakness, muscular incoordination, fine tremors, loss of reflexes, diarrhea, and coma. Studies in animals have shown edema and hyperemia of the lungs, moderate fatty degeneration, round cell infiltration and necrosis of the liver. The kidney showed hyperemia, necrosis of the epithelium, granular pigmentation and glomerular nephritis. The heart showed separation of fibers of the myocardium, interfibrillary hemorrhages, infiltration of the endocardium, lesions of the endothelium and fibrinous deposits in the valves. Changes in bone marrow and myeloid changes in the spleen were observed. Changes in muscle included the disappearance of nuclei in striated muscle, loss of striation and the swelling of the muscle plasma which coagulates and decomposes.

Toxicity:

LDLO (oral, humn) 28mg/kg

LD₅₀ (oral, rat) 789mg/kg

LD₅₀ (oral, mus) 300mg/kg

Target Organ: Blood and Kidneys.

SECTION 4 - FIRST AID MEASURES

INHALATION: Remove to fresh air. If breathing has stopped give artificial respiration. If breathing is difficult give oxygen.

EYES CONTACT: Immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eyelids with fingers.

SKIN CONTACT: Immediately wash skin with soap and copious amounts of water while removing contaminated clothing and shoes.

INGESTION: Wash mouth out with water and consult a physician. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE - FIGHTING MEASURES

FLASHPOINT:

No information.

FLAMMABLE LIMITS:

LEL N/A

UEL N/A

AUTOIGNITION TEMPERATURE:

No information.

EXTINGUISHING MEDIA:

Water Spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL FIRE FIGHTING PROCEDURES:

If excessive smoke or fumes are encountered, wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

UNUSUAL FIRE/EXPLOSION HAZARDS:

Emits toxic fumes carbon monoxide and carbon dioxide.

Material Safety Data Sheet PYROGALLIC ACID

SECTION 6 - ACCIDENTAL RELEASE MEASURES

WASTE DISPOSAL: Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations.
.....Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

SPILLS OR LEAKS:
..... Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.
..... Sweep up, place in a bag and hold for waste disposal.
..... Avoid raising dust.
..... Ventilate area and wash spill site after material pickup is complete.

SECTION 7 - HANDLING AND STORAGE

RESPIRATORY PROTECTION: NIOSH/MSHA-approved respirator

PROTECTIVE CLOTHING: Chemical-resistant gloves, safety goggles, and other protective clothing.

ADDITIONAL MEASURES: Safety shower and eye bath. Use only in a well-ventilated area. Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Readily absorbed through skin. Wash thoroughly after handling. Toxic. Severe irritant. Sensitizer. Keep containers tightly closed. Air and light sensitive. Store in a cool dry place.

SECTION 8 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White to off-white crystalline powder.

BOILING POINT: 309°C

MELTING POINT: 133-136°C

VAPOR PRESSURE: 10mm @ 167.7°C (0.01Pa @ 20°C)

VAPOR DENSITY (AIR=1): 4.4

SPECIFIC GRAVITY: No information.

SOLUBILITY IN WATER: 40g/100ml @ 25°C

REACTIVITY IN WATER: No information.

Material Safety Data Sheet PYROGALLIC ACID

SECTION 9 - STABILITY AND REACTIVITY DATA

STABILITY: Stable.

INCOMPATIBILITY: Acid chlorides, acid anhydrides, bases and oxidizing agents. Light sensitive. May discolor on exposure to air.

HAZARDOUS DECOMPOSITION: Toxic fumes of carbon monoxide and carbon dioxide.

SECTION 10 - REGULATORY INFORMATION

CN1= Canadian Workplace Hazardous Materials Information System (WHMIS) Ingredient Disclosure List // Ingredient must be disclosed at a concentration of 1%.

TSCA= This chemical is listed on the TSCA Inventory.

SECTION 11 - TRANSPORTATION DATA

PROPER SHIPPING NAME: Toxic solids, organic, n.o.s. (Pyrogalllic Acid)

HAZARD CLASS AND LABEL: 6.1 "KEEP AWAY FROM FOOD" label required

UN NUMBER: UN2811

PACKAGING: III

SPECIAL PROVISIONS: N/A

NOTE: We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and of these opinions and the conditions of the use of the product are not within the control of Aceto Corporation, it is the user's obligation to determine the conditions of safe use of the product.

REPORT NUMBER: 703
MSDS NO: P21725VS
MAINFRAME UPLOAD DATE: 10/08/98

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

100930

PAGE: 001

VERSION: 001

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 173703
PROD NO : 614395

PHOTOGRAPHERS FORMULARY
CALL IN ADVANCE TO MEET
HC-31
BOX 89
CONDON , MT 59806

VAN WATERS & ROGERS INC. , A ROYAL PAKHOED COMPANY (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: POTASSIUM BROMIDE
MSDS#: P21725VS
DATE ISSUED: 2/26/96
SUPERSEDES: NEW
ISSUED BY: 006600

IDENTIFICATION OF THE SUBSTANCE
CHEMICAL NAME POTASSIUM BROMIDE
CHEMICAL FORMULA KBR
CAS NUMBER 7758-02-3
CHEMICAL FAMILY INORGANIC BROMIDE
MOLECULAR WEIGHT 119
TYPE OF PRODUCT AND USE FOR USE IN PHOTOGRAPHIC EMULSIONS AND DEVELOPING SOLUTIONS
HEAT STABILIZER IN NYLON
BROMINATING AGENT

EMERGENCY TELEPHONE NUMBER:

REPORT NUMBER: 703
MSDS NO: P21725VS
MAINFRAME UPLOAD DATE: 10/08/98

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 002
VERSION: 001

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 173703
PROD NO : 614395

- FOR USA CHEMTREC (800)424-9300

COMPOSITION / INFORMATION ON INGREDIENTS
HAZARDOUS COMPONENT(S) POTASSIUM BROMIDE - 99.5 %

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE WHITE, ODOURLESS, CRYSTALLINE SOLID

MELTING POINT/RANGE 734.C

BOILING POINT/RANGE 1435 C

SPECIFIC GRAVITY 2.75

VAPOUR PRESSURE 1 MM HG AT 795.C

RELATIVE VAPOUR DENSITY (AIR=1) NOT APPLICABLE UNDER STANDARD CONDITIONS

EVAPORATION RATE (ETHER=1) NOT APPLICABLE UNDER STANDARD CONDITIONS

VOLUBILITY:

- SOLUBILITY IN WATER 65.5 GR/100ML AT 20 C

102 GR/100ML AT 100.C

- SOLUBILITY IN OTHER SOLVENTS ALCOHOL: 0.142 GR/100ML AT 25 C

THERMAL DECOMPOSITION FROM CAT 800 C

HAZARDS IDENTIFICATION

ADVERSE HUMAN HEALTH EFFECTS IRRITANT TO EYES

FIRE - FIGHTING MEASURES

FLASH POINT NONE

AUTO-IGNITION TEMPERATURE NOT APPLICABLE

FLAMMABLE/EXPLOSION LIMITS NOT FLAMMABLE

EXTINGUISHING MEDIA MATERIAL IS NOT COMBUSTIBLE. USE EXTINGUISHING MEDIA

APPROPRIATE TO SURROUNDING FIRE

CONDITIONS.

FIRE FIGHTING PROCEDURE COOL CONTAINERS WITH WATER SPRAY.

IN CLOSED STORES, PROVIDE FIRE-FIGHTERS WITH SELF-CONTAINED BREATHING

APPARATUS IN POSITIVE PRESSURE MODE.

UNUSUAL FIRE AND EXPLOSION

HAZARDS WILL DECOMPOSE FROM CA 800 C RELEASING POISONOUS AND CORROSIVE FUMES OF HBR.

TOXICOLOGICAL INFORMATION

TOXICITY:

- RAT ORAL LD50 '1000 MG/KG

- EYE IRRITATION (RABBIT) IRRITANT

- DERMAL IRRITATION (RABBIT) NOT IRRITANT

EFFECTS OF OVEREXPOSURE:

- OCULAR IRRITANT

- DERMAL NOT IRRITANT TO INTACT SKIN. SLIGHTLY IRRITANT ON PROLONGED CONTACT TO ABRADED SKIN.

- INHALATION MAY CAUSE IRRITATION TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 173703
PROD NO : 614395

- INGESTION ABDOMINAL PAIN; NAUSEA AND VOMITING.
MAY CAUSE FALLING ASLEEP, MUSCULAR INCOORDINATION AND RESPIRATORY DEPRESSION.
CHRONIC TOXICITY REPEATED SKIN CONTACT MAY CAUSE DERMATITIS
REPEATED ORAL INTAKE OF BROMIDES (>9 MG/KG BODY WEIGHT/DAY) MAY AFFECT THE
CENTRAL NERVOUS SYSTEM. WARNING SYMPTOMS INCLUDE MENTAL DULLNESS, SLURRED
SPEECH, WEAKENED MEMORY, APATHY, ANOREXIA, CONSTIPATION, DROWSINESS AND LOSS
OF SENSITIVITY TO TOUCH AND PAIN.
CARCINOGENICITY NOT KNOWN TO BE A CARCINOGEN.
NOT INCLUDED IN NTP 7TH ANNUAL REPORT ON CARCINOGENS.
NOT CLASSIFIED BY IARC.
MUTAGENICITY NOT MUTAGENIC BY THE AMES TEST

FIRST-AID MEASURES

EYE CONTACT HOLDING THE EYELIDS APART, FLUSH EYES PROMPTLY WITH COPIOUS
FLOWING WATER FOR AT LEAST 20 MINUTES.
GET MEDICAL ATTENTION IMMEDIATELY.
SKIN CONTACT REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH MILD SOAP
AND PLENTY OF WATER FOR AT LEAST 15 MINUTES. WASH CLOTHING BEFORE RE-USE.
GET MEDICAL ATTENTION IF IRRITATION OCCURS.
INHALATION IN CASE OF DUST INHALATION OR BREATHING FUMES RELEASED FROM HEATED
MATERIAL, REMOVE PERSON TO FRESH AIR.
KEEP HIM QUIET AND WARM. APPLY ARTIFICIAL RESPIRATION IF NECESSARY AND GET
MEDICAL ATTENTION IMMEDIATELY.

INGESTION IF SWALLOWED, WASH MOUTH THOROUGHLY WITH PLENTY OF WATER AND GIVE
WATER OR MILK TO DRINK. GET MEDICAL ATTENTION IMMEDIATELY.

NOTE: NEVER GIVE AN UNCONSCIOUS PERSON ANYTHING TO DRINK.

ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE KBR IS AN INORGANIC SALT, WHICH FULLY DISSOCIATES IN
AQUATIC ENVIRONMENT TO BROMIDE AND POTASSIUM IONS. IT ALSO UNDERGOES
DEGRADATION IN SOIL TO BROMIDE ION (NO FURTHER
DEGRADATION OR BIODEGRADATION WILL OCCUR).

OCTANOL/ WATER PARTITION

COEFFICIENT NOT APPLICABLE SINCE THIS MATERIAL IS ALMOST COMPLETELY SOLUBLE IN
WATER.

AQUATIC TOXICITY

- LC50, FISH 3200 MG/L, 5 DAYS (RAINBOW TROUT)
- 48 HOUR-EC50
DAPHNIA MAGNA >100 MG/L

AVIAN TOXICITY

- BOBWHITE QUAIL, ACUTE ORAL LD50 >2500 MG/KG
- BOBWHITE QUAIL, DIETARY LC50 6000 PPM

BIOACCUMULATIVE POTENTIAL BIOACCUMULATION IS NOT LIKELY TO OCCUR SINCE THIS
MATERIAL IS HIGHLY SOLUBLE IN WATER.

REPORT NUMBER: 703
MSDS NO: P21725VS
MAINFRAME UPLOAD DATE: 10/08/98

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 004
VERSION: 001

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 173703
PROD NO : 614395

STABILITY AND REACTIVITY
STABILITY HYGROSCOPIC.
STABLE UNDER NORMAL CONDITIONS
MATERIALS TO AVOID STRONG OXIDANTS
STRONG ACIDS
HEAVY METAL SALTS
REACTS EXPLOSIVELY WITH BROMINE TRIFLUORIDE
CONDITIONS TO AVOID HEATING ABOVE 800.C
EXPOSURE TO MOISTURE
HAZARDOUS DECOMPOSITION PRODUCTS HBR
HAZARDOUS POLYMERIZATION WILL NOT OCCUR
ACCIDENTAL RELEASE MEASURES
PERSONAL PRECAUTIONS WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER GLOVES
AND BOOTS
AFTER SPILLAGE OR LEAKAGE SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL
OR POSSIBLE RE-USE.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

DISPOSAL CONSIDERATIONS
WASTE DISPOSAL ADD INTO A LARGE VESSEL CONTAINING WATER AND DRAIN INTO SEWER
WITH AMPLE WATER.
THE HYDROLYSIS REACTION MAY GENERATE HEAT AND FUMES WHICH CAN BE CONTROLLED
BY THE RATE OF ADDITION.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS WHEN DISPOSING
OF THIS MATERIAL.
EXPOSURE CONTROLS / PERSONAL PROTECTION
EXPOSURE LIMITS:
- TLV -TWA NOT ESTABLISHED
VENTILATION REQUIREMENTS MECHANICAL EXHAUST REQUIRED.
VENTILATION MUST BE SUFFICIENT TO MAINTAIN DUST BELOW 10MG/M3 8 HOURS TWA
(ACGIH RECOMMENDED THRESHOLD LIMIT VALUE FOR TOTAL DUST).

PERSONAL PROTECTION EQUIPMENT:
- RESPIRATORY PROTECTION DUST RESPIRATOR
- GLOVES PROTECTIVE GLOVES
- EYE PROTECTION CHEMICAL SAFETY GOGGLES
- OTHERS BODY COVERING CLOTHES AND BOOTS

INDUSTRIAL HYGIENE SAFETY SHOWER AND EYE BATH SHOULD BE PROVIDED. DO NOT EAT,
DRINK OR SMOKE UNTIL AFTER-WORK SHOWERING AND CHANGING CLOTHES.

HANDLING AND STORAGE
HANDLING AVOID BODILY CONTACT
KEEP CONTAINERS TIGHTLY CLOSED.
STORAGE HYGROSCOPIC. AVOID EXPOSURE TO MOISTURE.
STORE IN A DRY, COOL, WELL-VENTILATED AREA

REPORT NUMBER: 703
MSDS NO: P21725VS
MAINFRAME UPLOAD DATE: 10/08/98

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 005
VERSION: 001

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 173703
PROD NO : 614395

AWAY FROM INCOMPATIBLE MATERIALS (SEE " MATERIALS TO AVOID").

TRANSPORTATION INFORMATION
UN NO. NOT REGULATED
IMO/IMDG CODE NOT REGULATED
ICAO/IATA NOT REGULATED
US DOT NOT REGULATED
REGULATORY INFORMATION
USA REPORTED IN THE EPA TSCA INVENTORY
EEC REPORTED IN EINECS (NO. 2351838)

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

CONTACT: MSDS COORDINATOR VAN WATERS & ROGERS INC.
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

02/09/99 13:06 PRODUCT: 614395 CUST NO: 113365 ORDER NO: 173703

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DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THEY
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REPORT NUMBER: 703

MSDS NO: P21725VS

MAINFRAME UPLOAD DATE: 10/08/98

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 006

VERSION: 001

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 173703

PROD NO : 614395

* * * E N D O F M S D S * * *

REPORT NUMBER: 703
SDS NO: GC003068
EFFECTIVE DATE: 11/23/92

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 001

VERSION: 002

PRODUCT: SODIUM SULFITE
10-1340

ORDER NO: 141120
PROD NO : 503217

PHOTOGRAPHERS FORMULARY
C/O UNITED FRT. TERMINAL

KALISPELL , MT 59806

VAN WATERS & ROGERS INC. , SUBSIDIARY OF UNIVAR (206)889-3400
100 CARILLON POINT , KIRKLAND , WA 98033

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

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

SKI

----- FOR PRODUCT AND SALES INFORMATION -----

CONTACT YOUR LOCAL VAN WATERS & ROGERS BRANCH OFFICE AT
VW&R SPOKANE 509-534-0405 SPOKANE , WA

PRODUCT NAME:
SODIUM SULFITE

SDS #: GC003068

GENERAL INFORMATION

TRADE NAME (COMMON NAME): SODIUM SULFITE, SULFTECH(TM) grade Sodium Sulfite
I.A.S. No. 7757-83-7
CHEMICAL NAME AND/OR SYNONYM: Sodium Sulfite
FORMULA: Na₂SO₃
MOLECULAR WEIGHT: 126.04
ADDRESS: GENERAL CHEMICAL CORPORATION
90 East Halsey Road
Parsippany, NJ 07054-0389
LOCAL CONTACT: Manager of Product Safety
LOCAL PHONE NUMBER: (201) 515-1840
CURRENT ISSUE DATE: July, 1990

FIRST AID MEASURES

EMERGENCY PHONE NUMBER: (800) 631-8050
EYES: Immediately flush with plenty of water, for at least 15 minutes. Get medical attention.
SKIN: Promptly wash with plenty of soap and water.
INHALATION: Remove to fresh air. If symptoms persist, get medical attention.

REPORT NUMBER: 703
SDS NO: GCO03068
EFFECTIVE DATE: 11/23/92

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 002
VERSION: 002

PRODUCT: SODIUM SULFITE

ORDER NO: 141120
PROD NO : 503217

INGESTION: If conscious, immediately give 2 to 4 glasses of water or milk and induce vomiting by touching finger to back of throat. Get immediate medical attention.

2. HAZARDS INFORMATION

HEALTH -

INHALATION: Inhalation of product dust or mist may irritate respiratory tract. Contact with acids liberates irritating and potentially fatal sulfur dioxide gas.

INGESTION: Ingestion may irritate gastrointestinal tract. Estimated to be moderately toxic. May cause severe allergic reaction in some asthmatics and sulfite sensitive individuals. Large doses may cause violent colic and diarrhea, circulatory disturbances, central nervous system depression and even death.---Reference (a).

SKIN: Dust or mist may cause skin irritation from prolonged contact. Solutions will irritate. See pH, Section F. Rabbit and guinea pig data available, Reference (b).

EYES: Dust or mist may irritate or burn eyes. Solutions will irritate or burn. See pH, Section F.

PERMISSIBLE CONCENTRATION: AIR: (SEE SECTION J)
None established for sodium sulfite.
OSHA/TWA for SO₂ = 2 ppm
OSHA/STEL for SO₂ = 5 ppm
BIOLOGICAL: None established.

UNUSUAL CHRONIC TOXICITY: See Section K.

FIRE AND EXPLOSION -

FLASH POINT: Not flammable.

AUTO IGNITION TEMPERATURE: NA

FLAMMABLE LIMITS IN AIR (% BY VOL.): LOWER - NA UPPER - NA

UNUSUAL FIRE AND EXPLOSION HAZARDS: See Hazardous Decomposition Products, Section G.

3. PRECAUTIONS/PROCEDURES

FIRE EXTINGUISHING AGENTS RECOMMENDED: NA

FIRE EXTINGUISHING AGENTS TO AVOID: NA

SPECIAL FIRE FIGHTING PRECAUTIONS: Wear NIOSH-approved self-contained breathing apparatus. Use water-spray to keep containers cool, and to knock down fumes.

VENTILATION: LOCAL EXHAUST if dusty or misty condition prevails.
LOCAL EXHAUST if there is release of sulfur dioxide gas, see Section G.
Keep incompatible materials out of hoods, ducts, etc.

NORMAL HANDLING: Avoid contact with eyes, skin, clothing. Avoid breathing dust or mist. Use with adequate ventilation.

STORAGE: Store in a cool, dry area, away from acids or oxidizers.
Keep container closed. Protect from physical damage.

SPILL OR LEAK (ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT - SECTION E):

REPORT NUMBER: 703
MS NO: GC003068
EFFECTIVE DATE: 11/23/92

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 003
VERSION: 002

PRODUCT: SODIUM SULFITE

ORDER NO: 141120
PROD NO : 503217

Promptly shovel up dry chemical into an empty container, and cover. Store as above. Cautiously spray residue with plenty of water. (See Section I for disposal methods.)

SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS: SIGNAL WORD - WARNING: Contact with acids releases irritating and potentially fatal sulfur dioxide gas. See drum-handling instructions on label. When dissolving, add water cautiously and with stirring.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION: If dusty or misty conditions prevail, use dust or mist respirator approved by NIOSH. If sulfur dioxide should be released (see Section G), use respiratory protection approved by NIOSH for this gas.--Reference (c).

EYES AND FACE: If exposed to dust or mist or solution, wear hard hat (or other head covering) and chemical safety goggles. Do not wear contact lenses.

HANDS, ARMS, AND BODY: Wear full work-clothing, including long-sleeved shirt and trousers for routine product-handling. Cotton gloves are usually adequate for dry product. For solutions, wear impervious gloves and apron. If contact is repeated or prolonged, wear full impervious clothing.

OTHER CLOTHING AND EQUIPMENT: Eyewash facility.

PHYSICAL DATA

APPEARANCE AND ODOR: SOLID

APPEARANCE AND ODOR: White granular crystals or powder. Odorless.

BOILING POINT: Decomposes 900 Degrees C

MELTING POINT: ND

SPECIFIC GRAVITY (H2O=1): 2.63

VAPOR DENSITY (AIR=1): NA

SOLUBILITY IN WATER (% by Weight): (Calculated as the anhydrous salt)
17% solution at 10 Degrees C
28% solution at 33.4 Degrees C

pH: 1% solution; pH=9.8 (approx.)

VAPOR PRESSURE (mm Hg at 20 Degrees C): NA

EVAPORATION RATE (Ether=1): NA (Butyl Acetate = 1): NA

PERCENT VOLATILES BY VOLUME (At 20 Degrees C): NA

REACTIVITY DATA

STABILITY: STABLE

CONDITIONS TO AVOID: High temperature (before melting); yield sulfur dioxide gas and hazardous residue (details below).

INCOMPATIBILITY (MATERIALS TO AVOID): STRONG OXIDIZERS cause vigorous exothermic reactions.

ACIDS release sulfur dioxide gas (details below).

REPORT NUMBER: 703
MSDS NO: GC003068
EFFECTIVE DATE: 11/23/92

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 00
VERSION: 00

PRODUCT: SODIUM SULFITE

ORDER NO: 141120
PROD NO : 503217

HAZARDOUS DECOMPOSITION PRODUCTS: SULFUR DIOXIDE GAS: toxic and corrosive.
SODIUM SULFIDE RESIDUE: flammable, dangerous fire risk, strong irritant
to skin and tissue, incompatible with acids.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID: NA

H. HAZARDOUS INGREDIENTS (Mixtures Only)

MATERIAL OR COMPONENT/C.A.S. #: Not Applicable.

I. ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY:

Aquatic Toxicity: 2600 ppm/24, 48 & 96 hr/mosquito fish/TLm/fresh water.

Biological Oxygen Demand (BOD): 0.12 lb/lb, instantaneous.---Reference (d).

OCTANOL/WATER PARTITION COEFFICIENT: NO

EPA HAZARDOUS SUBSTANCES (CLEAN WATER ACT SEC. 311): NO

IF SO REPORTABLE QUANTITY: -- (40 CFR 116-117)

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL
DISPOSAL OR DISCHARGE LAWS): Dissolve in water, using caution as solution
can get hot. Neutralize with acid and flush to sewer with plenty of water
if permitted by applicable disposal regulations. Good ventilation is
required during neutralization due to release of SO₂ gas. Oxidation to
sodium sulfate solution may be required, as for example, by adding a
slight excess of dilute hydrogen peroxide carefully and with stirring.
Neutralized waste may have to be disposed of by an approved contractor.

RCRA STATUS OF UNUSED MATERIAL IF DISCARDED: Not a "hazardous waste".
HAZARDOUS WASTE NUMBER: (IF APPLICABLE): NA (40 CFR 261)

J. REFERENCES

PERMISSIBLE CONCENTRATION REFERENCES:

None.

REGULATORY STANDARDS:

FDA regulations apply to the use of food grade material (21 CFR).

D.O.T. CLASSIFICATION: Not Regulated (49 CFR 173)

GENERAL:

- (a) Monograph 139, "Sulfite Salts", Gosselin, R.E. et al., CLINICAL TOXICOLOGY OF COMMERCIAL PRODUCTS, 4th Ed., 1976.
- (b) NIOSH, REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES, 1981-82, P881 - 154478, No. WE215 00 00.
- (c) NIOSH/OSHA "Pocket Guide to Chemical Hazards", DHMS (NIOSH) Pub. No. 78-210, 1978, Gov't. Printing Office, Washington 20402.
- (d) Coast Guard CHRIS system form SSF, "Sodium Sulfite", Oct. 1978

K. ADDITIONAL INFORMATION

Sodium sulfite has been demonstrated to be mutagenic in microbial systems;

PORT NUMBER: 703
OS NO: GC003068
EFFECTIVE DATE: 11/23/92

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 005
VERSION: 002

PRODUCT: SODIUM SULFITE

ORDER NO: 141120
PROD NO : 503217

However, it is not mutagenic in studies involving insects and is not considered to present a mutagenic threat to multicell organisms, (i.e. animals, humans).

This product is not for drug or food use unless so labeled.

As a food grade product, the following applies:

- 1) Effective July 9, 1986, the FDA has banned the use of "Sulfiting Agent" or "Sulfites" on fruits and vegetables intended to be served or sold raw to consumers.
- 2) Effective July 9, 1987, the FDA is requiring when a sulfite is present in a detectable amount in a finished food, regardless of whether it has been directly or indirectly added via one or more of the food ingredients, it must be declared on the label. The regulation defines a "detectable amount" of sulfite to be 10 ppm.
- 3) Sulfiting agents or sulfites are not to be used on foods or meats recognized as a source of Vitamin B1.

FOOTNOTE: ND = NOT DETERMINED NA = NOT APPLICABLE
* = PROPRIETARY - TRADE SECRET

REPORT NUMBER: 703
SDS NO: 0C003068
EFFECTIVE DATE: 11/23/92

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 006

VERSION: 002

PRODUCT: SODIUM SULFITE

ORDER NO: 141120
PROD NO : 503217

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

CONTACT: MSDS COORDINATOR VW&R SPOKANE
 DURING BUSINESS HOURS, PACIFIC TIME (206)889-3400

08/24/94 10:21 PRODUCT: 503217 CUST NO: 113365 ORDER NO: 141120

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* * * E N D O F M S D S * * *

10-1190

FEB 13 1996

REPORT NUMBER: 703
MSDS NO: P1127
EFFECTIVE DATE: 01/10/91

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 001

VERSION: 007

PRODUCT: SODIUM CARBONATE

ORDER NO: 151211
PROD NO : 628695

PHOTOGRAPHERS FORMULARY
C/O TNT UNITED DOCK

MISSOULA ,MT 59806

VAN WATERS & ROGERS INC. , SUBSIDIARY OF UNIVAR (206)887-3400
6100 CARILLON POINT , KIRKLAND , WA 98033

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

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

-----PRODUCT IDENTIFICATION-----

PRODUCT NAME: SODIUM CARBONATE CAS NO.: 5968-11-6 (MONOHYDRATE)
497-19-8 (ANHYDROUS)
6132-02-1(DECAHYDRATE)

COMMON NAMES/SYNONYMS: DISODIUM CARBONATE; SODA ASH MSDS #: P1127
CONSAL; SODIUM CARBONATE DECAHYDRATE

FORMULA: NA2 CO3; NA2 CO3. 10H2O (DECAHYDRATE) DATE ISSUED: 01/91

MOLECULAR WEIGHT: 105.99; 286 DECAHYDRATE SUPERCEDES: 10/90

NFPA RATING (MANUFACTURER)

HMIS RATING

HEALTH: 2	HAZARD RATING SCALE	HEALTH: 1
FIRE: 0	0=MINIMAL 3=SERIOUS	FIRE: 0
REACTIVITY: 0	1=SLIGHT 4=SEVERE	REACTIVITY: 0
SPECIAL: NONE	2=MODERATE	

-----HAZARDOUS INGREDIENTS-----

EXPOSURE LIMITS, PPM

COMPONENT	CAS NO.	%	OSHA ACGIH OTHER			HAZARD
			PEL	TLV	LIMIT	

REPORT NUMBER: 703
REGS NO: P1127
EFFECTIVE DATE: 01/10/91

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 002
VERSION: 007

PRODUCT: SODIUM CARBONATE

ORDER NO: 151211
PROD NO : 628695

SODIUM CARBONATE (497-19-8) 99 NONE NONE NONE IRRITANT

NOTE: SYNONYM FOR CONSAL IS SODIUM CARBONATE DECAHYDRATE

-----PHYSICAL PROPERTIES-----

BOILING POINT, DEG F: DECOMPOSES

MELTING POINT, DEG F: 1564

SPECIFIC GRAVITY (WATER=1): 2.25 - 2.53; 1.44 (DECAHYDRATE)

VAPOR PRESSURE, MM HG: NOT APPLICABLE pH: 11.3 (1% SOLUTION)

VAPOR DENSITY (AIR=1): NOT APPLICABLE WATER SOLUBILITY %: 33.2X WT

EVAPORATION RATE (BUTYL ACETATE = 1): NOT APPLICABLE

% VOLATILE (BY VOLUME): NOT APPLICABLE

APPEARANCE AND ODOR: WHITE ODORLESS POWDER OR GRANULES.

-----FIRST AID MEASURES-----

IF INHALED: REMOVE TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION IF NOT BREATHING. GET IMMEDIATE MEDICAL ATTENTION.

IN CASE OF EYE CONTACT: IMMEDIATELY FLUSH EYES WITH LOTS OF RUNNING WATER FOR 15 MINUTES, LIFTING THE UPPER AND LOWER EYELIDS OCCASIONALLY. GET IMMEDIATE MEDICAL ATTENTION.

IN CASE OF SKIN CONTACT: IMMEDIATELY WASH SKIN WITH LOTS OF SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND SHOES; WASH BEFORE REUSE. GET MEDICAL ATTENTION IF IRRITATION PERSISTS AFTER WASHING.

IF SWALLOWED: DO NOT INDUCE VOMITING. IF CONSCIOUS, GIVE LOTS OF WATER OR MILK. GET IMMEDIATE MEDICAL ATTENTION. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSING PERSON.

NOTES TO PHYSICIAN: NONE

-----HEALTH HAZARD INFORMATION-----

PRIMARY ROUTES OF EXPOSURE: INHALATION, SKIN OR EYE CONTACT.

SIGNS AND SYMPTOMS OF EXPOSURE

REPORT NUMBER: 703
S.D.S. NO: P1127
EFFECTIVE DATE: 01/10/91

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 003

VERSION: 007

PRODUCT: SODIUM CARBONATE

ORDER NO: 151211
PROD NO : 628695

INHALATION: BREATHING DUST MAY IRRITATE THE NOSE AND THROAT AND CAUSE COUGHING AND CHEST DISCOMFORT. EXCESSIVE CONTACT CAN CAUSE DAMAGE TO THE NASAL SEPTUM.

EYE CONTACT: DUSTS WILL IRRITATE THE EYES AND PROLONGED CONTACT MAY DAMAGE THE EYES.

SKIN CONTACT: PROLONGED OR REPEATED CONTACT WITH THE DUST MAY IRRITATE THE SKIN WITH BLISTERING AND REDNESS, SOLUTIONS MAY CAUSE SEVERE IRRITATION OR BURNS.

SWALLOWED: SWALLOWING LARGE QUANTITIES MAY CAUSE NAUSEA, VOMITING, ABDOMINAL PAIN, DIARRHEA AND COLLAPSE.

CHRONIC EFFECTS OF EXPOSURE: MAY CAUSE SENSITIZATION.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE REPORTED.

-----TOXICITY DATA-----

ORAL: RATS LD50 = 4 G/KG

DERMAL: RABBITS 500 MG/24 HR; MODERATE IRRITATION

INHALATION: NO DATA FOUND

CARCINOGENICITY: THIS MATERIAL IS NOT CONSIDERED TO BE A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM, THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER, OR THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

OTHER DATA: NONE

-----ECOLOGICAL INFORMATION SECTION-----

NO DATA FOUND

-----PERSONAL PROTECTION-----

VENTILATION: LOCAL MECHANICAL EXHAUST VENTILATION CAPABLE OF MAINTAINING DUST EMISSIONS AT THE POINT OF USE.

RESPIRATORY PROTECTION: IF USE CONDITIONS GENERATE DUSTS, WEAR A NIOSH-APPROVED RESPIRATOR APPROPRIATE FOR THOSE EMISSION LEVELS. APPROPRIATE RESPIRATORS MAY BE A FULL FACEPIECE OR A HALF MASK AIR-PURIFYING CARTRIDGE RESPIRATOR WITH PARTICULATE FILTERS, A SELF-CONTAINED BREATHING APPARATUS IN THE PRESSURE DEMAND MODE, OR A SUPPLIED-AIR RESPIRATOR.

REPORT NUMBER: 703
MSDS NO: P1127
EFFECTIVE DATE: 01/10/91

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 004
VERSION: 007

PRODUCT: SODIUM CARBONATE

ORDER NO: 151211
PROD NO : 628695

EYE PROTECTION: CHEMICAL GOGGLES AND FULL FACE SHIELD. IT IS GENERALLY
RECOGNIZED THAT CONTACT LENSES SHOULD NOT BE WORN WHEN WORKING WITH
CHEMICALS BECAUSE CONTACT LENSES MAY CONTRIBUTE TO THE SEVERITY OF AN
EYE INJURY.

PROTECTIVE CLOTHING: LONG-SLEEVED SHIRT, TROUSERS, SAFETY SHOES, RUBBER
GLOVES, AND RUBBER APRON.

OTHER PROTECTIVE MEASURES: AN EYEWASH AND SAFETY SHOWER SHOULD BE
NEARBY AND READY FOR USE.

-----FIRE AND EXPLOSION INFORMATION-----

FLASH POINT, DEG F: N/A
METHOD USED: N/A

FLAMMABLE LIMITS IN AIR, %
LOWER: N/A UPPER: N/A

AUTOIGNITION TEMPERATURE, DEG. F: NO DATA FOUND

EXTINGUISHING MEDIA: USE WATER SPRAY, DRY CHEMICAL, CO2, OR ALCOHOL
FOAM.

SPECIAL FIRE FIGHTING PROCEDURES: FIRE FIGHTERS SHOULD WEAR SELF-
CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. USE WATER
SPRAY TO COOL NEARBY CONTAINERS AND STRUCTURES EXPOSED TO FIRE.

UNUSUAL FIRE AND EXPLOSION HAZARDS: EXTINGUISH ALL NEARBY SOURCES OF
IGNITION.

-----HAZARDOUS REACTIVITY-----

STABILITY: STABLE

POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: EXCESSIVE HEAT AND CONTAMINATION OF ANY KIND.

MATERIALS TO AVOID: ACIDS, OXIDES OF PHOSPHOROUS, ZINC, LITHIUM, FLUORINE,
CALCIUM HYDROXIDE, ALUMINUM AND 2,4,6-TRINITROTOLUENE. CONTACT WITH ACIDS
WILL RELEASE CARBON DIOXIDE GAS. WHEN MIXED WITH LIME DUST AND WATER,
CORROSIVE CAUSTIC SODA MAY BE PRODUCED.

HAZARDOUS DECOMPOSITION PRODUCTS: MAY LIBERATE CARBON MONOXIDE OR
CARBON DIOXIDE AND OXIDES OF SODIUM.

-----SPILL, LEAK, AND DISPOSAL PROCEDURES-----

ACTION TO TAKE FOR SPILLS OR LEAKS: WEAR PROTECTIVE EQUIPMENT INCLUDING
RUBBER BOOTS, RUBBER GLOVES, RUBBER APRON, AND A SELF-CONTAINED
BREATHING APPARATUS IN THE PRESSURE DEMAND MODE OR A SUPPLIED-AIR

REPORT NUMBER: 703
REV NO: P1127
EFFECTIVE DATE: 01/10/91

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 005
VERSION: 007

PRODUCT: SODIUM CARBONATE

ORDER NO: 151211
PROD NO : 628695

RESPIRATOR. IF THE SPILL OR LEAK IS SMALL, A FULL FACEPIECE AIR-PURIFYING CARTRIDGE RESPIRATOR EQUIPPED WITH PARTICULATE FILTERS MAY BE SATISFACTORY. IN ANY EVENT, ALWAYS WEAR EYE PROTECTION. FOR SMALL SPILLS, SWEEP UP AND DISPOSE OF IN DOT-APPROVED WASTE CONTAINERS. FOR LARGE SPILLS, SHOVEL INTO DOT-APPROVED WASTE CONTAINERS. KEEP OUT OF SEWERS, STORM DRAINS, SURFACE WATERS, AND SOIL. COMPLY WITH ALL APPLICABLE GOVERNMENTAL REGULATIONS ON SPILL REPORTING, AND HANDLING AND DISPOSAL OF WASTE.

DISPOSAL METHODS: DISPOSE OF CONTAMINATED PRODUCT AND MATERIALS USED IN CLEANING UP SPILLS OR LEAKS IN A MANNER APPROVED FOR THIS MATERIAL. CONSULT APPROPRIATE FEDERAL, STATE AND LOCAL REGULATORY AGENCIES TO ASCERTAIN PROPER DISPOSAL PROCEDURES.

NOTE: EMPTY CONTAINERS CAN HAVE RESIDUES, GASES AND MISTS AND ARE SUBJECT TO PROPER WASTE DISPOSAL, AS ABOVE.

-----SPECIAL PRECAUTIONS-----

STORAGE AND HANDLING PRECAUTIONS: STORE IN A COOL, DRY, WELL-VENTILATED PLACE AWAY FROM INCOMPATIBLE MATERIALS. KEEP BAGS OR FIBER DRUMS DRY AT ALL TIMES. WASH THOROUGHLY AFTER HANDLING. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. AVOID EYE CONTACT OR PROLONGED SKIN CONTACT. AVOID BREATHING DUST. WHEN DISSOLVING, ADD TO WATER CAUTIOUSLY AND WITH STIRRING; SOLUTIONS CAN GET HOT.

REPAIR AND MAINTENANCE PRECAUTIONS: NONE.

OTHER PRECAUTIONS: CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, WILL RETAIN PRODUCT RESIDUE AND VAPORS. ALWAYS OBEY HAZARD WARNINGS AND HANDLE EMPTY CONTAINERS AS IF THEY WERE FULL. AVOID SIMULTANEOUS EXPOSURE TO SODA ASH AND LIME DUST. IN THE PRESENCE OF MOISTURE THE TWO MATERIALS COMBINE TO FORM CAUSTIC SODA (NaOH), WHICH MAY CAUSE BURNS.

-----OTHER REGULATORY INFORMATION-----

SECTION 313: NONE

PROPOSITION 65: SEE BELOW

SECTION 313 & PROP. 65: SEE BELOW

SECTION 313 (WITH CHEMICALS LISTED): NONE

PROPOSITION 65 (WITH CHEMICALS LISTED): THIS PRODUCT CONTAINS THE FOLLOWING CHEMICAL(S) CONSIDERED BY THE STATE OF CALIFORNIA'S SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (PROPOSITION 65) AS CAUSING CANCER OR REPRODUCTIVE TOXICITY AND FOR WHICH WARNINGS ARE NOW REQUIRED:

REPORT NUMBER: 703
MSDS NO: P1127
EFFECTIVE DATE: 01/10/91

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 006
VERSION: 007

PRODUCT: SODIUM CARBONATE

ORDER NO: 151211
PROD NO : 62S695

CHEMICALS	CAS NO.	% WT
ARSENIC	7440-38-2	< .03 PPM
CHROMIUM	7440-47-3	< .03 PPM
LEAD	7439-92-1	<1.00 PPM

MASSACHUSETTS: NONE

PENNSYLVANIA: NONE

CALIFORNIA SCAQMD: NONE

TSCA: THE INGREDIENTS OF THIS PRODUCT ARE ON THE TSCA INVENTORY.

-----REVISIONS-----

07/89: ADDED OTHER REGULATORY INFORMATION.

08/89: CHANGED HEADING AND CONTACT INFORMATION.

04/90: ADDED MOLECULAR WEIGHT, HHIS RATING, NOTES TO PHYSICIAN, AUTOIGNITION TEMPERATURE, pH, % VOLATILE, ECOLOGICAL INFORMATION, OTHER REGULATORY INFORMATION EXCEPT PROP. 65 (WITH CHEMICALS LISTED), CALIFORNIA SCAQMD & TSCA.

04/90: REVISED MATERIALS TO AVOID, STORAGE AND HANDLING & OTHER PRECAUTIONS.

10/90: ADDED: OTHER REGULATORY INFORMATION 1,2,3,4,

REVISED: VENTILATION

01/91: ADDED: CAS. NO., SYNONYM, FORMULAS, MOLECULAR WEIGHT, NOTE-TO HAZARDOUS INGREDIENTS, SPECIFIC GRAVITY

REPORT NUMBER: 703
MSDS NO: P1127
EFFECTIVE DATE: 01/10/91

VAN WATERS & ROGERS INC.
MATERIAL SAFETY DATA SHEET

PAGE: 007
VERSION: 007

PRODUCT: SODIUM CARBONATE

ORDER NO: 151211
PROD NO : 628675

FOR ADDITIONAL INFORMATION

CONTACT: MSDS COORDINATOR VAN WATERS & ROGERS INC.
DURING BUSINESS HOURS, PACIFIC TIME (206)899-3400

02/12/96 13:30 PRODUCT: 628675 CUST NO: 113365 ORDER NO: 151211

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