

# PHOTOGRAPHERS' FORMULARY INC.

P.O. Box 950 • Condon MT 59826 • 800-922-5255 • FAX 406-754-2896

Cat. number 02-0118 1 to 2 liters working solution  
Cat. number 02-0119 2 to 4 liters working solution

## FORMULARY SELECTOL PAPER DEVELOPER

Formulary Selectol paper developer is a long-life developer specially designed for the development of warm-tone papers. It produces the same pleasing image tone and contrast as Kodak® developer D-52, remains clear during use, and has high development capacity and good keeping properties. Since the development activity decreases only very slowly with use, constant image tone is easy to maintain.

### CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the chemical warnings listed below, and on each package. Always use rubber gloves and dust mask when using chemicals.

**HYDROQUINONE:** Considered hazardous by EPA. It is considered a skin sensitizer, and may cause eye or skin irritation. Please handle this liquid with gloves and splash goggles. If ingested or splashed in the eyes, contact a physician.

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

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

### MIXING THE STOCK SOLUTION

You will need a 1 or 2 liter storage container and a 1000 ml or 2000 ml graduated cylinder for mixing the stock solution. You may find it convenient to use a proper-sized mixing bowl to mix the stock solution.

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DEVELOPER

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### STOCK SOLUTION

Chemical	1 liter	2 liter
Water (50° C/125° F)	500 ml	1000 ml
Metol	1.5 gr	3.0 gr
Sodium Sulfite, Anhydrous	21.2 gr	42.4 gr
Hydroquinone	6.0 gr	12.0 gr
Sodium Carbonate, Monohydrate	17.0 gr	34.0 gr
Potassium Bromide	1.5 gr	3.0 gr
Cold water to make	1000 ml	2000 ml

### FOR BEST RESULTS USE DISTILLED WATER.

Place the warm water in the storage container and add a pinch of sodium sulfite. (A small amount of sodium sulfite will minimize the initial oxidation of the metol. If more is added at this point, the metol will not dissolve.) Add the metol to the solution and stir until all of the metol is dissolved. It is important that all of the metol be dissolved before the other chemicals are added. Add the sodium sulfite, stirring until the solid dissolves. Add each chemical in the order given in the table above. Be sure each chemical is completely dissolved before adding the next one to the solution. Finally, add cold water to the solution to bring its final volume up to the kit size.

### LIFE AND CAPACITY OF THE SOLUTION

The stock solution has a life of up to six months if kept in a full, tightly-capped bottle. The working solution should be discarded at the end of a day's work.

### USING THE DEVELOPER

For fast papers - make a working solution of 1 part stock solution and 1 part water. For slow papers - use the stock solution full strength. For a softer print, dilute 1:3. Develop the print for 2 minutes at 68° F (20° C). For slightly warmer image tone, develop 90 seconds. Contrast can be increased slightly with some papers by developing up to 4 minutes. Increased development times will produce colder image tones.

For warmer tones, an additional 3 grams potassium bromide may be added per liter of working solution.

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# CHARKIT CHEMICAL CORPORATION

330 POST ROAD, DARIEN, CONNECTICUT 06820

**TRANSPORTATION EMERGENCY:**  
**CALL CHEMTREC: 800-424-9300**

**MATERIAL SAFETY DATA SHEET**

**NON-TRANSPORTATION EMERGENCY:**  
**CALL CHARKIT: 203-655-3400**  
**FAX: 203-655-8643**

## I. PRODUCT IDENTIFICATION:

CHEMICAL NAME> p-METHYL AMINO PHENOL SULFATE  
PRODUCT NAME> METOL  
CHEMICAL FAMILY> PHENOL  
PRODUCT CODE> 570-50400  
SYNONYMS> METOL; METOLMIN  
CAS NUMBER> 55-55-0  
FORMULA> C7 H9 N O · ½ H2 S O4

## II. HAZARDOUS INGREDIENTS:

<u>INGREDIENT NAME</u>	<u>EXPOSURE LIMITS</u>	<u>CONCENTRATION (%)</u>
p-METHYL AMINO PHENYL SULFATE (non-hazardous material)		
55-55-0	OSHA PEL: NUISANCE DUST 15mg/m <sup>3</sup>	NOT LESS THAN
	ACGIH TLV: NUISANCE DUST 10mg/m <sup>3</sup>	99%

### III. PHYSICAL PROPERTIES:

<u>PHYSICAL FORM</u> >	CRYSTALS
<u>COLOR</u> >	WHITE TO OFF-WHITE
<u>ODOR</u> >	NO DATA AVAILABLE
<u>MOLECULAR WEIGHT</u> >	344.32
<u>pH</u> >	NO DATA AVAILABLE
<u>BOILING POINT</u> >	NO DATA AVAILABLE
<u>MELTING/FREEZING POINT</u> >	131.5° - 133.5° C
<u>VISCOSITY</u> >	NO DATA AVAILABLE
<u>SOLUBILITY IN WATER</u> >	SOLUBLE
<u>SPECIFIC GRAVITY</u> >	1.577
<u>BULK DENSITY</u> >	NO DATA AVAILABLE
<u>VAPOR PRESSURE</u> >	NO DATA AVAILABLE
<u>EVAPORATION RATE</u> >	NO DATA AVAILABLE
<u>% VOLATILE BY VOLUME</u> >	NO DATA AVAILABLE
<u>ASSAY</u> >	BY TITRATION

### IV. FIRE AND EXPLOSION DATA

<u>FLASH POINT</u> >	NO DATA AVAILABLE
<u>TEST CUP METHOD</u> >	NO DATA AVAILABLE
<u>FLAMMABLE</u> >	NO DATA AVAILABLE
<u>COMBUSTIBLE</u> >	NO DATA AVAILABLE
<u>UPPER EXPLOSIVE LIMIT</u> >	NO DATA AVAILABLE
<u>LOWER EXPLOSIVE LIMIT</u> >	NO DATA AVAILABLE
<u>AUTO-IGNITION TEMP</u> >	NO DATA AVAILABLE
<u>EXTINGUISHING MEDIA</u> >	WATER SPRAY, DRY POWDER OR FOAM TYPE FIRE EXTINGUISHERS
<u>SPECIAL FIRE-FIGHTING PROCEDURES</u> >	FIREFIGHTERS SHOULD WEAR FULL PROTECTIVE CLOTHING AND SELF-CONTAINED BREATHING APPARATUS
<u>UNUSUAL FIRE AND EXPLOSION HAZARDS</u> >	DECOMPOSES AT APPROXIMATELY 260° C

## V. HUMAN HEALTH DATA

ROUTE(S) OF ENTRY> EYES, SKIN, INHALATION, INGESTION

### HUMAN EFFECTS AND SYMPTIONS OF OVEREXPOSURE:

INHALATION> MAY CAUSE IRRITATION OF RESPIRATORY TRACT

INGESTION> INGESTION OF LARGE DOSES MAY CAUSE GASTROINTESTINAL UPSET

SKIN CONTACT> MAY CAUSE IRRITATION AND REDDENING; MAY CAUSE ALLERGIC SKIN REACTION

EYE CONTACT> MAY CAUSE IRRITATION AND REDDENING

CHRONIC EXPOSURE> PROLONGED SKIN EXPOSURE MAY CAUSE ALLERGIC SKIN REACTION  
PROLONGED INHALATION/INGESTION MAY CAUSE ADVERSE EFFECTS

AGGRAVATION OF PRE-> NO DATA AVAILABLE  
EXISTING CONDITONS

CARCINOGENICITY> NOT LISTED BY NTP, IARC OR REGULATED AS A CARCINOGEN BY OSHA.

## VI. FIRST AID

INHALATION> REMOVE TO FRESH AIR. CALL A PHYSICIAN.  
IF BREATHING IS DIFFICULT GIVE OXYGEN.  
IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION.

INGESTION> IF SWALLOWED CALL A PHYSICIAN.

SKIN CONTACT> IN CASE OF CONTACT WASH SKIN WITH SOAP AND WATER.  
WASH CLOTHING BEFORE REUSING.  
CALL A PHYSICIAN IF IRRITATION PERSISTS.

## VI. FIRST AID (CONTINUED)

EYE CONTACT> IMMEDIATELY FLUSH EYES WITH RUNNING WATER FOR 15 MINUTES  
CALL A PHYSICIAN

## VII. EMPLOYEE PROTECTION RECOMMENDATIONS

EYE PROTECTION> USE CHEMICAL SAFETY GOGGLES.  
DO NOT WEAR CONTACT LENS IF AIRBORNE DUST IS PRESENT.

SKIN PROTECTION> USE CHEMICALLY RESISTENT GLOVES AND CLOTHING.  
WASH FACE AND HANDS BEFORE EATING OR DRINKING.

PERSONAL RESPIRATORS> USE A NIOSH/MSHA APPROVED DUST RESPIRATOR.

VENTILATION SYSTEM> USE LOCAL EXHAUST IF DUST CONCENTRATION EXCEEDS NUISANCE  
EXPOSURE LIMIT OR IF WORKER DISCOMFORT EXISTS.

ADDITIONAL MEASURES> PROVIDE EMERGENCY SHOWERS AND EYE WASH STATIONS.  
TRAIN IN THE SAFE USE AND HANDLING OF HAZARDOUS CHEMICALS.  
WASH CLOTHING BEFORE REUSING.

## VIII. REACTIVITY DATA:

STABILITY> STABLE UNDER ORDINARY CONDITIONS OF USE AND STORAGE.

CONDITIONS TO AVOID> NONE KNOWN

HAZARDOUS POLYMERIZATION> WILL NOT OCCUR

CONDITIONS TO AVOID> NONE KNOWN

INCOMPATIBILITIES> NONE KNOWN

DECOMPOSITION TEMPERATURE> NO DATA AVAILABLE

DECOMPOSITION PRODUCTS> MAY EMIT TOXIC FUMES IF DECOMPOSES

## IX. SPILL AND LEAK PROCEDURES:

<u>GENERAL SAFETY</u> >	REMOVE ALL SOURCES OF IGNITION; VENTILATE AREA. PROVIDE PROTECTION FROM INHALATION OF DUST OR FUMES.
<u>SPILL OR LEAK RESPONSE</u> >	UTILIZE RECOMMENDED PROTECTIVE CLOTHING AND EQUIPMENT. SWEEP UP SPILL AND PLACE IN CONTAINERS. AVOID DISPERSING DUST INTO AIR.
<u>WASTE DISPOSAL</u> >	CHECK FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. PREVENT WASH WATER FROM ENTERING GROUND WATER

## X. SPECIAL PRECAUTIONS AND STORAGE DATA:

<u>STORAGE TEMPERATURE</u> >	<u>MIN:</u> NO DATA AVAILABLE <u>MAX:</u> NO DATA AVAILABLE <u>AMBIENT:</u> NO DATA AVAILABLE
<u>SHELF LIFE</u> >	NO DATA AVAILABLE
<u>SPECIAL SENSITIVITY</u> >	NO DATA AVAILABLE
<u>HANDLING &amp; STORAGE</u> >	MAINTAIN SAFE HOUSEKEEPING PRACTICES
<u>PRECAUTIONS</u>	STORE IN COOL DRY AREA AWAY FROM HEAT OR FLAME. KEEP CONTAINER TIGHTLY CLOSED. AVOID CONTACT WITH SKIN OR EYES. AVOID BREATHING DUST.

## XI. SHIPPING INFORMATION:

<u>D.O.T. SHIPPING NAME</u> >	CHEMICALS N.O.S. (p-METHYL AMINO PHENOL SULFATE)
<u>HAZARD CLASS</u> >	NONE
<u>U.N. NUMBER</u> >	NONE
<u>PACKING GROUP</u> >	NONE
<u>LABELS</u> >	NONE
<u>R Q ENTRY REQUIRED</u> >	NO

## XII. ANIMAL TOXICITY DATA:

### ACUTE TOXICITY:

<u>ORAL LD 50&gt;</u>	200 mg/kg (rat)
<u>DERMAL LD 50&gt;</u>	NO DATA AVAILABLE
<u>INHALATION LD 50&gt;</u>	NO DATA AVAILABLE
<u>SKIN EFFECTS&gt;</u>	NO DATA AVAILABLE
<u>SENSITIZATION&gt;</u>	NO DATA AVAILABLE
<u>EYE EFFECTS&gt;</u>	NO DATA AVAILABLE

### OTHER TOXICITY:

<u>SUBCHRONIC TOXICITY&gt;</u>	NO DATA AVAILABLE
<u>CHRONIC TOXICITY&gt;</u>	NO DATA AVAILABLE
<u>AQUATIC TOXICITY&gt;</u>	NO DATA AVAILABLE
<u>OTHER TOXICITY DATA&gt;</u>	NO DATA AVAILABLE

## XIII. FEDERAL REGULATORY INFORMATION:

OSHA STATUS> NOT HAZARDOUS

TSCA STATUS> LISTED ON TSCA INVENTORY

CERCLA RQ> NONE

RCRA STATUS> NOT HAZARDOUS WASTE IN PURCHASED FORM.

### SARA TITLE III:

§302 EHS RQ> NOT APPLICABLE

§302 EHS TPQ> NOT APPLICABLE

§313 TOXIC CHEMICALS> NONE

§311/312> NONE

### HAZARD CATEGORIES

OSHA: OCCUPATIONAL HEALTH AND SAFETY ACT; HAZARD STATUS UNDER OSHA HAZARD COMMUNICATION STANDARD 29.

TSCA: TOXIC SUBSTANCES CONTROL ACT; LISTING DOES NOT INDICATE HAZARD STATUS.

CERCLA SEC. 103: COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (SUPERFUND); RELEASES TO AIR, LAND OR WATER OF THESE HAZARDOUS SUBSTANCES WHICH EXCEED THE REPORTABLE QUANTITY (RQ) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER (800-424-8802); 40 CFR 372.65.

RCRA: RESOURCE CONSERVATION AND RECLAMATION ACT; COMMERCIAL CHEMICAL PRODUCT WASTES DESIGNATED AS ACUTE HAZARDS AND TOXIC; 40 CFR 261.33.

SARA SECTION 302 EHS RQ: REPORTABLE QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE, LISTED AT 40 CFR 365.

SARA SECTION 302 EHS TPQ: THRESHOLD PLANNING QUANTITY OF EXTREMELY HAZARDOUS SUBSTANCE.

SARA SECTION 313 CHEMICALS: TOXIC SUBSTANCES SUBJECT TO ANNUAL RELEASE REPORTING REQUIREMENTS LISTED AT 40 CFR 372.65.

SARA SECTION 311/312 CHEMICALS: HAZARD CATEGORIES FOR REPORTING REQUIREMENTS.

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#### XIV. OTHER REGULATORY INFORMATION:

THE FOLLOWING CHEMICALS ARE SPECIFICALLY LISTED BY INDIVIDUAL STATES; OTHER PRODUCT SPECIFIC HEALTH AND SAFETY DATA IN OTHER SECTIONS OF THIS MSDS MAY ALSO BE APPLICABLE FOR STATE REQUIREMENTS. FOR DETAILS ON YOUR REGULATORY REQUIREMENTS YOU SHOULD CONTACT THE APPROPRIATE AGENCY IN YOUR STATE.

STATE CODE	COMMENTS:
<u>NJ4</u>	NEW JERSEY; INCLUDED IN 5 PREDOMINANT INGREDIENTS > 1%
<u>PA3</u>	PENNSYLVANIA; NON-HAZARDOUS PRESENT AT 3% OR GREATER
<u>CA65</u>	CALIFORNIA PROPOSITION 65; TO OUR KNOWLEDGE THIS PRODUCT CONTAINS LEVELS OF LISTED SUBSTANCES WHICH CALIFORNIA HAS FOUND TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE EFFECTS
<u>MSL</u>	MASSACHUSETTS SUBSTANCE LIST (MSL); HAZARDOUS SUBSTANCES AND EXTRAORDINARILY HAZARDOUS SUBSTANCES ON THE MSL MUST BE IDENTIFIED WHEN PRESENT IN PRODUCTS

INGREDIENT NAME  
/CAS NUMBER

CONCENTRATION

STATE CODE

p-METHYL AMINO PHENYL SULFATE (non-hazardous material)

55-55-0

NOT LESS THAN

99%

NJ4, PA3

THIS INFORMATION IS FURNISHED WITHOUT WARRANTY, EXPRESSED OR IMPLIED, EXCEPT THAT IT IS ACCURATE TO THE BEST KNOWLEDGE OF CHARKIT CHEMICAL CORPORATION. THE DATA ON THESE SHEETS RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED HEREIN. CHARKIT CHEMICAL CORPORATION ASSUMES NO LEGAL RESPONSIBILITY FOR USE OR RELIANCE UPON THIS DATA.

**CHARKIT CHEMICAL CORPORATION**

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570-50400



<u>RHONE-POULENC PRODUCT NAME(S)</u>	<u>PRODUCT CODE(S)</u>	
HYDROQUINONE	9371360	2871750
HYDROQUINONE TECHNICAL	2871753	S2871750-GM
HYDROQUINONE PHOTO GRADE	2871751	S2871751-GM
HYDROQUINONE INHIBITOR GRADE	7352000	7352017

RHONE-POULENC INC.  
 CN 7500  
 Cranbury NJ 08512-7500  
 (609) 860 4000

Emergency Phone Number (24 Hours)  
 CHEMTREC 800-424-9300

Date Prepared  
 9/8/92

Supercedes  
 7/9/91

MSDS Number  
 00690-26.ORG

**Section 1. PRODUCT IDENTIFICATION**

Synonym(s): 1,4-Benzenediol; p-dihydroxybenzene; p-hydroxyphenol

<u>Chemical Name(s) of Primary Component(s)</u>	<u>CAS Number(s)</u>	<u>Chemical Formula</u>
Hydroquinone	123-31-9	C <sub>6</sub> H <sub>6</sub> O <sub>2</sub>

**Section 2. INGREDIENTS/SUMMARY OF HAZARDS**

<u>Ingredient(s)</u>	<u>CAS Number(s)</u>	<u>OSHA Hazardous (H)/</u>		<u>Percent</u>
		<u>Non-Hazardous (NH)</u>		
Hydroquinone	123-31-9	H		≥ 98

**SARA Title III Hazard Classification:**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Immediate (Acute) Health Hazard | <input type="checkbox"/> Sudden Release of Pressure Hazard |
| <input type="checkbox"/> Delayed (Chronic) Health Hazard            | <input type="checkbox"/> Reactive Hazard                   |
| <input type="checkbox"/> Fire Hazard                                |  |

**WARNING STATEMENTS:**

TOXIC BY INGESTION. SKIN, EYE AND RESPIRATORY TRACT IRRITANT. CAN CAUSE CORNEA IRRITATION AND DISCOLORATION, SKIN DEPIGMENTATION, HEADACHES, NAUSEA, METHEMOGLOBINEMIA, SHORTNESS OF BREATH, COLLAPSE AND CENTRAL NERVOUS SYSTEM EFFECTS. SENSITIZER. MODERATE TO SEVERE DUST EXPLOSION RISK.

**Section 3. PHYSICAL DATA**

<u>Melting Point (°F):</u>	340
<u>Boiling Point (°F):</u>	548
<u>Vapor Pressure (mmHg):</u>	0.1 @ 60°C
<u>Vapor Density (air = 1):</u>	3.8
<u>Solubility in Water:</u>	Slightly soluble (7% @ 25°C; 30% @ 65°C)
<u>Specific Gravity:</u>	1.35 @ 20°C
<u>Evaporation Rate (butyl acetate = 1):</u>	Not applicable

RHONE-POULENC PRODUCT NAME(S)  
 HYDROQUINONE; HYDROQUINONE PHOTO GRADE; HYDROQUINONE TECHNICAL GRADE; HYDROQUINONE  
 INHIBITOR GRADE.

### Section 3. PHYSICAL DATA (continued)

% Volatile by Volume: Not available  
Appearance/Odor: Colorless solid (needles)/odorless; sweet  
 taste

### Section 4. FIRE AND EXPLOSION HAZARD DATA

Flash Point (°F)/Method: 329/TCC  
Flammable Limits: LFL Not available UFL Not available  
Extinguishing Media: (X) Water Fog (X) Foam  
 (X) Dry Chemical (X) CO<sub>2</sub>  
 ( ) Other (specify):

#### Special Fire Fighting Procedures:

Wear a NIOSH/MSHA approved self-contained breathing apparatus and full protective  
 clothing. Cool containers exposed to fire with water.

#### Unusual Fire and Explosion Hazards:

MODERATE TO SEVERE DUST EXPLOSION RISK. Toxic fumes emitted on combustion.  
 Ignition point: 520 °C.

### Section 5. REACTIVITY DATA

Stability: ( ) Unstable (X) Stable

Conditions to avoid: Avoid temperatures greater than 170°C, air, light and  
 aluminum while hot.

#### Incompatibility (materials to avoid):

( ) Water ( ) Strong acids (X) Strong bases  
 ( ) Reducing agents (X) Strong oxidizing materials ( ) Combustible materials  
 (X) Other (specify): Air-sensitive. Light-sensitive. Aluminum while hot.

#### Hazardous Decomposition Products or Byproducts:

On combustion, oxides of carbon are emitted.

Hazardous polymerization: ( ) May occur (X) Will not occur

Conditions to avoid: Not applicable

### Section 6. HEALTH HAZARD DATA/FIRST AID PROCEDURES

#### EXPOSURE LIMITS IN AIR

<u>Chemical Name(s)</u>	<u>ACGIH (TWA)</u>	<u>OSHA (TWA)</u>	<u>OTHER</u>
Hydroquinone	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup> /15M (ceiling) (NIOSH)

RHONE-POULENC PRODUCT NAME(S)

HYDROQUINONE; HYDROQUINONE PHOTO GRADE; HYDROQUINONE TECHNICAL GRADE; HYDROQUINONE INHIBITOR GRADE.

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Section 6. HEALTH HAZARD DATA/FIRST AID PROCEDURES (continued)

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EFFECTS OF SINGLE OVEREXPOSURESwallowing:

TOXIC BY MOUTH. Acute oral LD50: 320 mg/kg (rat); 245 mg/kg (mouse); 70 mg/kg (cat); 200 mg/kg (dog); 550 mg/kg guinea pig. Acute oral LDLo: 29 mg/kg (human). (1)

Symptoms: tinnitus, nausea, dizziness, a sense of suffocation, an increased rate of respiration, vomiting, pallor, muscular twitchings, headache, dyspnea, cyanosis from methemoglobinemia, delirium and collapse. Urine is usually green or brownish-green.

Skin Absorption:

Not readily absorbed through skin. Practically no toxic effects were observed in rats at 900 mg/kg. (2) Acute dermal/mammal LD50: 5970 mg/kg. (1)

Inhalation:

Inhalation of dusts and vapors does not seem to have the same toxic effects as swallowing. (4) (5)

Skin Contact:

IRRITANT. In human skin tests, mild irritation was observed at 2%; severe, at 5%. (1) Dermatitis has been reported. See also EFFECTS OF REPEATED OVEREXPOSURE below.

Eye Contact:

IRRITANT. See also EFFECTS OF REPEATED OVEREXPOSURE below.

EFFECTS OF REPEATED OVEREXPOSURE:

Following prolonged exposure to elevated dust levels, brownish conjunctiva stains may appear. These may be followed by corneal opacities and structural changes in the cornea which may lead to loss of visual acuity. The early pigmentary stains are reversible, while the corneal changes tend to be progressive. (5) The eye injuries develop gradually over a period of years, with no serious cases appearing from exposures of durations shorter than five years. (7)

The skin may be depigmented by repeated applications of ointments of hydroquinone, but this virtually never occurs from contact with dust or dilute water solutions.

Hydroquinone does not cause developmental (birth defects) or reproductive toxicity.

CARCINOGENICITY:

The National Toxicology Program (NTP) has concluded that hydroquinone administered by gavage to rats and mice for two years produces some evidence of carcinogenic activity. (6)

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO MAN: No additional data found.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Not found.

RHONE-POULENC PRODUCT NAME(S)  
HYDROQUINONE; HYDROQUINONE PHOTO GRADE; HYDROQUINONE TECHNICAL GRADE; HYDROQUINONE INHIBITOR GRADE.

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Section 6. HEALTH HAZARD DATA/FIRST AID PROCEDURES (continued)

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FIRST AID PROCEDURES

EYES: IMMEDIATELY, flush eye and surrounding skin with a large volume of water using an eye-wash fountain for at least 15 minutes. Thoroughly rinse under lids. GET IMMEDIATE MEDICAL ATTENTION, PREFERABLY AN EYE DOCTOR.

SKIN: IMMEDIATELY, wash with a large volume of water and soap for at least 15 minutes. Remove contaminated clothes and shoes under shower. SEE NOTE TO PHYSICIAN FOR FURTHER FIRST AID. GET IMMEDIATE MEDICAL ATTENTION.

INHALATION:

Wear appropriate protective gear. Remove victim from area of exposure. Give oxygen therapy. If breathing stopped, give artificial respiration. GET IMMEDIATE MEDICAL ATTENTION. SEE NOTE TO PHYSICIAN.

INGESTION:

If swallowed and victim is fully conscious, induce vomiting immediately by giving two glasses of water and sticking finger down throat. GET IMMEDIATE MEDICAL ATTENTION.

NOTE TO PHYSICIAN:

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Treat symptomatically. No specific information found.

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Section 7. PRECAUTIONS FOR SAFE HANDLING AND USE

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STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Isolate area. Wear appropriate protective gear. Sweep up into steel or plastic drum. Avoid creating dusting conditions. Ventilate area. Wash area after pick up complete.

WASTE DISPOSAL METHOD:

Dispose of in accordance with Local, State and Federal regulations.  
Aquatic toxicity: LC50, 24H/daphnia, 0.09 mg/l. (8)

HANDLING AND STORAGE:

Store in a cool, dry place in tightly closed containers. Avoid direct exposure to sun. Avoid breathing dusts, mists or vapors. Avoid direct exposure with skin and eyes. Wash hands thoroughly after handling. Do not rub eyes with soiled hands. Do not eat, drink or smoke in the work area. Avoid aluminum containers while hot.

OTHER PRECAUTIONS:

THIS PRODUCT MAY PRESENT A DUST EXPLOSION HAZARD. It is recommended that all dust control equipment and material transport systems involved in handling of this product contain explosion relief vents or explosion suppression systems or an oxygen deficient environment. In addition, all conductive elements of the system that contact this material should be electrically bonded and grounded. This powder should not be flowed through non-conductive ducts or pipes. Use only appropriately classed electrical equipment.

RHONE-POULENC PRODUCT NAME(S)

HYDROQUINONE; HYDROQUINONE PHOTO GRADE; HYDROQUINONE TECHNICAL GRADE; HYDROQUINONE INHIBITOR GRADE.

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**Section 7. PRECAUTIONS FOR SAFE HANDLING AND USE (Continued)**

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OTHER PRECAUTIONS (continued):

Good industrial hygiene practice recommends that engineering controls be used to reduce environmental concentrations to the permissible levels.

Runoff from fire control may cause pollution.

Complete periodic physical examination of exposed personnel including studies of liver, kidneys and skin should be performed (preplacement and annual). Maintain atmosphere in work area below exposure limits at all times in a regular monitoring program. (9)

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**Section 8. CONTROL MEASURES AND WORKER PROTECTION INFORMATION**

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Respiratory Protection (specify type):

When permissible exposure limits are exceeded, use a NIOSH/MSHA approved air purifying full-face respirator with a combination high-efficiency filter and organic vapors canister.

Ventilation:

Provide adequate ventilation. Use local exhaust.

Protective Clothing:

Work uniform, gloves and boots.

Eye Protection:

- Safety Glasses with Side Shields
- Chemical Workers Dust-Proof Goggles
- Gas-tight Goggles or Equivalent
- Other (specify): DO NOT WEAR CONTACT LENSES. Use a face shield.

Other Protective Equipment:

Maintain a sink, safety shower and eyewash fountain in the work area. Have oxygen readily available.

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**Section 9. REGULATORY STATUS**

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TSCA Inventory Status: Product is listed on the TSCA Inventory.

Transportation Status: IMO/DOT: HYDROQUINONE, POISONOUS SOLID, UN 2662, Class 6.1, Pkg. Group III. LABEL: KEEP AWAY FROM FOOD

Reportable Quantity (RQ), under U.S. EPA CERCLA: Not listed under CERCLA. However, under Section 304(a)(2) of the Emergency Planning and Community Right-to-Know Act of 1986, hydroquinone has an RQ of 1 lb.

Specifically Listed under SARA Title III:

- Section 302 Extremely Hazardous Substances (500 lb.)
- Section 313 Toxic Chemicals
- Not listed

## MATERIAL SAFETY DATA SHEET

RHONE-POULENC PRODUCT NAME(S)  
 HYDROQUINONE; HYDROQUINONE PHOTO GRADE; HYDROQUINONE TECHNICAL GRADE; HYDROQUINONE  
 INHIBITOR GRADE.

## Section 9. REGULATORY STATUS (Continued)

State/International Right-to-Know Regulations:

California:	Not listed
Connecticut:	Not listed
Florida:	Toxic
Illinois:	Toxic, Chem
Louisiana:	RTK
Massachusetts:	RTK; EHS (E); Spill RQ 1 lb.
New Jersey:	RTK ID# 1019; Spec. (MU); ENV; Tax
New York:	Spill RQ 1 lb. (air; L/W)
Pennsylvania:	RTK; ENV
Rhode Island:	HAZ Toxic
Canada:	Conc. 1%; No. 852

NFPA and HMIS Ratings:

	NFPA	HMIS
Health	2	2
Fire	1	1
Reactivity	0	0
Other		

KEY = NFPA/HMIS

0 = minimal hazard  
 1 = slight hazard  
 2 = moderate hazard  
 3 = high/serious hazard  
 4 = extreme/severe hazard

## Section 10. REFERENCES

- (1) RTEC (7/88).
- (2) Unpublished Rhone-Poulenc sponsored toxicity study.
- (3) For hydroquinone photo grade, 10/22/86.
- (4) New Jersey Department of Health Fact Sheet (December 1985).
- (5) Handbook of Toxic and Hazardous Chemical and Carcinogens (2 ed),  
M. Sittig, pp. 514-516 (1985).
- (6) NTP, Toxicity and Carcinogenesis Studies of Hydroquinone in F344/N Rats and  
B6C3F1 Mice (Gavage Studies), TR 366.
- (7) ACGIH Documentation, Hydroquinone (1986).
- (8) Institut für Wasser.
- (9) NIOSH--Recommended Standard for Occupational Exposure to Hydroquinone, 78-155  
(September 1978).

The information herein is given in good faith  
 but no warranty, expressed or implied, is made.



10-0730-MSD 4-97

REPORT NUMBER: 703  
DS NO: P1866  
FRAME UPLOAD DATE: 01/15/90

VAN WATERS & ROGERS INC.  
MATERIAL SAFETY DATA SHEET

PAGE: 001  
VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 157708  
PROD NO : 614395

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

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

PRODUCT NAME: POTASSIUM BROMIDE  
COMMON NAMES/SYNONYMS: POTASSIUM SALT  
OF BROMIDE

CAS NO.: 7758-02-3  
VW&R CODE: P1866

FORMULA: K BR  
HAZARD RATING (NFPA 704 CRITERIA)  
HEALTH: 0  
FIRE: 0  
REACTIVITY: 0  
SPECIAL: NONE

DATE ISSUED: 08/89  
SUPERCEDES: 07/87  
HAZARD RATING SCALE:  
0=MINIMAL 3=SERIOUS  
1=SLIGHT 4=SEVERE  
2=MODERATE

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

COMPONENT	%	EXPOSURE LIMITS, MG/M3			HAZARD
		OSHA PEL	ACGIH TLV	OTHER LIMIT	
POTASSIUM BROMIDE	>99	NONE	NONE	10(DOW)	NONE

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

BOILING POINT, DEG F: 2516 VAPOR PRESSURE, MM HG/20 DEG C: N/A  
MELTING POINT, DEG F: 1346 VAPOR DENSITY (AIR=1): N/A  
SPECIFIC GRAVITY (WATER=1): 2.75 WATER SOLUBILITY, %: 70  
APPEARANCE AND ODOR: EVAPORATION RATE (BUTYL ACETATE=1): N/A  
WHITE CRYSTALLINE SOLID; ODORLESS

REPORT NUMBER: 703

VAN WATERS & ROGERS INC.

PAGE: 002

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MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 01/15/90

VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 157708  
PROD NO : 614395

-----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: IF CONSCIOUS, IMMEDIATELY INDUCE VOMITING BY GIVING 2 GLASSES OF WATER AND STICKING A FINGER DOWN THE THROAT. GET IMMEDIATE MEDICAL ATTENTION. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSING PERSON.

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

PRIMARY ROUTES OF EXPOSURE: SKIN OR EYE CONTACT

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: BREATHING DUST MAY IRRITATE THE NOSE AND THROAT AND CAUSE COUGHING AND CHEST DISCOMFORT.

EYE CONTACT: DUSTS MAY IRRITATE THE EYES AND CAUSE SLIGHT TRANSIENT CORNEAL INJURY.

SKIN CONTACT: NO IRRITATION IS LIKELY AFTER BRIEF CONTACT BUT MAY BE IRRITATING OR CAUSE A BURN AFTER PROLONGED CONTACT WITH WET OR ABRADED SKIN.

SWALLOWED: LOW SINGLE DOSE TOXICITY.

CHRONIC EFFECTS OF EXPOSURE: REPEATED EXCESSIVE OVEREXPOSURE MAY CAUSE NAUSEA, VOMITING, MUSCULAR WEAKNESS, INCOORDINATION, DEPRESSION, PSYCHOSIS, ENDOCRINE EFFECTS, DEPRESSION OF THE HEART, ACNEFORM DERMATITIS. BROMISM HAS BEEN REPORTED IN OFFSPRING OF MOTHERS WHO ALSO HAD BROMIDE POISONING AS A RESULT OF INGESTION OF BROMIDES DURING PRENANCY.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE REPORTED.

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

ORAL: NO DATA FOUND

REPORT NUMBER: 703

VAN WATERS & ROGERS INC.  
MATERIAL SAFETY DATA SHEET

PAGE: 003

DOI NO: P1866

ONLINE UPLOAD DATE: 01/15/90

VERSION: 003

PRODUCT: POTASSIUM BROMIDE

ORDER NO: 157708  
PROD NO : 614395

TERMAL: NO DATA FOUND

INHALATION: NO DATA FOUND

MUTAGENICITY: 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: BROMIDE ION HAS BEEN SHOWN TO INTERFERE WITH FERTILITY IN  
ANIMAL STUDIES.

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

VENTILATION: LOCAL MECHANICAL EXHAUST VENTILATION CAPABLE OF MINIMIZING  
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 CART-  
RIDGE RESPIRATOR WITH PARTICULATE FILTERS, A SELF-CONTAINED BREATHING  
APPARATUS IN THE PRESSURE DEMAND MODE, OR A SUPPLIED-AIR RESPIRATOR.  
IN THE ABSENCE OF ADEQUATE ENVIRONMENTAL CONTROLS AT THE POINT OF USE.

EYE PROTECTION: SAFETY GLASSES WITH SIDE SHIELDS. 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, AND  
GLOVES.

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

FLAMMABLE LIMITS IN AIR, %

METHOD USED: N/A

LOWER: N/A UPPER: N/A

EXTINGUISHING MEDIA: THIS MATERIAL IS NOT COMBUSTIBLE. USE EXTIN-  
GUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

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.  
CONTAINED BREATHING APPARATUS.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE.

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MSDS NO: P1866

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VAN WATERS & ROGERS INC.  
MATERIAL SAFETY DATA SHEET

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PRODUCT: POTASSIUM BROMIDE

ORDER NO: 157708  
PROD NO : 614395

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

STABILITY: STABLE

POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NONE

MATERIALS TO AVOID: ACIDS, OXIDIZING MATERIALS.

HAZARDOUS DECOMPOSITION PRODUCTS: WILL LIBERATE TOXIC FUMES OF HYDROGEN BROMIDE AND/OR BROMINE.

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

ACTION TO TAKE FOR SPILLS OR LEAKS: WEAR PROTECTIVE EQUIPMENT INCLUDING RUBBER BOOTS, RUBBER GLOVES, RUBBER APRON, AND A FULL FACEPIECE OR A HALF MASK AIR-PURIFYING CARTRIDGE RESPIRATOR WITH PARTICULATE FILTERS. WEAR CHEMICAL GOGGLES IF A HALF MASK IS WORN. 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.

RUBBER BOOTS, RUBBER GLOVES, RUBBER APRON, AND CHEMICAL GOGGLES. FOR SMALL SPILLS, SWEEP UP AND DISPOSE OF IN DOT-APPROVED WASTE CONTAINERS. FOR LARGE SPILLS, SHOVEL INTO DOT-APPROVED WASTE CONTAINERS.

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.

CONTAINERS DRY AT ALL TIMES. WASH THOROUGHLY AFTER HANDLING. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.

REPAIR AND MAINTENANCE PRECAUTIONS: NONE.

OTHER PRECAUTIONS: CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, WILL

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PRODUCT: POTASSIUM BROMIDE

ORDER NO: 157708  
PROD NO : 614395

RETAIN PRODUCT RESIDUE. ALWAYS OBEY HAZARD WARNINGS AND HANDLE EMPTY  
CONTAINERS AS IF THEY WERE FULL.

-----REVISION-----

7/87: CORRECTED NFPA REFERENCE AND PHYSICAL DATA. REVISED SKIN  
CONTACT FIRST AID, PERSONAL PROTECTION, FIRE FIGHTING INFORMATION,  
DECOMPOSITION PRODUCTS, SPILL AND LEAK PROCEDURES, AND HANDLING  
ADVICE.

8/89: CHANGED HEADING AND CONTACT INFORMATION.

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

CONTACT: MSDS COORDINATOR VAN WATERS & ROGERS INC.  
DURING BUSINESS HOURS, PACIFIC TIME (206)889-3400

01/16/97 10:19 PRODUCT: 614395 CUST NO: 113365 ORDER NO: 157708

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DETERMINE WHETHER THE PRODUCT IS SUITABLE FOR THEIR PARTICULAR PURPOSES AND THEY  
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THE PUBLICATION OR USE OF, OR RELIANCE UPON, INFORMATION CONTAINED HEREIN.  
THIS INFORMATION RELATES ONLY TO THE PRODUCT DESIGNATED HEREIN, AND DOES NOT  
RELATE TO ITS USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY OTHER  
PROCESS.

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



LOT NUMBER: 703  
ID 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

----- 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  
C.A.S. No. 7757-83-7  
CHEMICAL NAME AND/OR SYNONYM: Sodium Sulfite  
FORMULA: Na<sub>2</sub>SO<sub>3</sub>  
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  
JOB NO: GC003068  
EFFECTIVE DATE: 11/28/92

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.

#### 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 SO<sub>2</sub> = 2 ppm  
OSHA/STEL for SO<sub>2</sub> = 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.

#### 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):



UNIT NUMBER: 703  
LOT NO: GC003068  
EFFECTIVE DATE: 11/23/92

VAN WATERS & REGERS INC.  
MATERIAL SAFETY DATA SHEET

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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

MATERIAL IS (AT NORMAL CONDITIONS): 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).

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SDS NO: GC003068  
EFFECTIVE DATE: 11/23/92

VAN WATERS & ROGERS INC.  
MATERIAL SAFETY DATA SHEET

PAGE: 004  
VERSION: 002

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

I. HAZARDOUS INGREDIENTS (Mixtures Only)

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

II. 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: ND

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", DHHS (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;

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

VAN WATERS & ROGERS INC.  
MATERIAL SAFETY DATA SHEET

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PRODUCT: SODIUM SULFITE

ORDER NO: 141120  
PROD NO : 503217

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

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

is food grade product, the following applies;

- ) 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.
- ) 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.
- ) 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



10-1189  
10-1190

FEB 13 1996

FORM NUMBER: 703  
FORM 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

NISSOULA ,MT 59806

VAN WATERS & ROGERS INC. , SUBSIDIARY OF UNIVAR (206)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 CARBONATE CAS NO.: 5968-11-6 (MONOHYDRATE)  
497-19-8 (ANHYDROUS)  
6132-02-1(DECAHYDRATE)

COMMON NAMES/SYNONYMS: DISODIUM CARBONATE; SOBA 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-----

COMPONENT	CAS NO.	%	EXPOSURE LIMITS, PPM			HAZARD
			OSHA PEL	ACGIH TLV	OTHER LIMIT	

REPORT NUMBER: 703  
MSDS 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

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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 %: 33.2% 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

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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.

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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



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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:

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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.

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-----REVISIONS-----

07/89: ADDED OTHER REGULATORY INFORMATION.

08/89: CHANGED HEADING AND CONTACT INFORMATION.

04/90: ADDED MOLECULAR WEIGHT, HMIS 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

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----- FOR ADDITIONAL INFORMATION -----  
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CONTACT: MSDS COORDINATOR            VAN WATERS & ROGERS INC.  
          DURING BUSINESS HOURS, PACIFIC TIME        (206)889-3400

02/12/96 13:30    PRODUCT: 628695    CUST NO: 113365    ORDER NO: 151211

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----- NOTICE -----  
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