

Catalog number 05-0020

FORMULARY REDUCER II FOR NEGATIVES

1-liter kit

The action of Reducer II is super-proportional; it removes more silver metal from the highlights than it does from the shadow areas. Using a reducer correctly is an art and requires experience. We strongly urge you to practice with this reducer using scrap negatives before attempting reduction of a negative of value.

CHEMICALS CONTAINED IN THIS KIT

Your kit contains the following chemicals.

<u>Chemical</u>	<u>Amount</u>
ammonium persulfate	25 g
sulfuric acid, 50%	6 ml
sodium sulfite	50 g

CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the warning on each package. Two chemicals in this kit require special attention; sulfuric acid and ammonium persulfate.

Sulfuric Acid, 48%. Sulfuric acid, even at 48% strength, is a strong acid. If you should spill the acid, wash the area (or skin or clothing) immediately with copious amounts of cold water followed by soap and water. Neutralization of spilled acid with alkali is no longer a recommended clean-up procedure.

Ammonium Persulfate, an oxidizer, can supply oxygen to any combustible compound and, thus, is a potential fire hazard. Always clean up any spilled oxidizer with water. Never dispose of excess solid oxidizer in a wastepaper basket -- rather, wash it down a sink drain with water.

10-0170



Gardena, CA

Material Safety Data Sheet

NFPA	HMIS		Personal Protective Equipment						
	<table border="1"> <tr> <td>Health Hazard</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Fire Hazard</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Reactivity</td> <td style="text-align: center;">0</td> </tr> </table>	Health Hazard	3	Fire Hazard	1	Reactivity	0	<p>See Section 15.</p>	
Health Hazard	3								
Fire Hazard	1								
Reactivity	0								

Section 1. Chemical Product and Company Identification

Common Name/ Trade Name	Ammonium persulfate	Code	A5220
Manufacturer	SPECTRUM CHEMICAL MFG. CORP. 14422 SOUTH SAN PEDRO STREET GARDENA, CALIFORNIA 90248-9985	CAS#	7727-54-0
Commercial Name(s)	Not available	RTECS	SE0350000
Synonym	Ammonium peroxydisulfate	TSCA	On the TSCA list.
Chemical Name	Not available.	CI#	Not available.
Chemical Family	Not available.	In case of emergency	
Chemical Formula	(NH ₄) ₂ S ₂ O ₈	CHEMTREC (24hr) 800-424-9300	
Supplier	SPECTRUM QUALITY PRODUCTS 14422 S. SAN PEDRO STREET GARDENA, CA 90248-9985	Emergency phone: (310) 516-8000	

Section 2. Composition and Information on Ingredients

Name	CAS#	Exposure Limits			% by Weight
		TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	
Ammonium persulfate	7727-54-0				100

Toxicological Data on Ingredients

Ammonium persulfate:
ORAL (LD50):

Acute: 820 mg/kg (Rat).

Section 3. Hazards Identification

Potential Acute Health Effects	Extremely dangerous in case of eye contact (irritant). Very dangerous in case of skin contact (irritant), of ingestion, of inhalation. Slightly dangerous to dangerous in case of skin contact (corrosive). Very slightly to slightly dangerous in case of skin contact (permeator). Corrosive to eyes and skin. This product is a severe eye irritant. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. This product may irritate eyes and skin upon contact. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Potential Chronic	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. The substance is toxic to lungs, mucous membranes. Toxicity of the

Health
Effects

product to the reproductive system: Not available. Repeated or prolonged exposure to the substance can produce target organs 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. Cover the irritated skin with an emollient. 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 medical attention.
Ingestion	Remove dentures if any. Watch for an obstruction in the victim's mouth. Remove if possible what is causing the obstruction but do not force fingers or a hard object between the victim's teeth. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Seek immediate medical attention.
Hazardous Ingestion	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. Remove dentures if any. Watch for an obstruction in the victim's mouth. Remove if possible what is causing the obstruction but do not force fingers or a hard object between the victim's teeth. If a soft pad can be inserted between the victim's teeth, it will protect the tongue from being bitten. A badly bleeding tongue immensely complicates the patient's problems. Have conscious person drink several glasses of water or milk. INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. If convulsions occur, do not restrain the victim, but do remove objects with which he (she) might injure himself (herself) or orient the victim to prevent him (her) from striking fixed heavy objects. If the convulsions cease, turn the victim on the side or face down so that any fluid in the mouth will drain. Seek medical attention.

Section 5. Fire and Explosion Data

Flammability of the Product	Combustible.
Auto-Ignition Temperature	Not available.
Flash Points	Not available.
Flammable Limits	Not available.

Products of Combustion	Not applicable.
Fire Hazards in Presence of Various Substances	Slightly flammable to flammable in presence of reducing materials.
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	Oxidizing material. DO NOT use water jet. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Use flooding quantities of water. Avoid contact with organic materials.
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	Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Call for assistance on disposal.

Section 7. Handling and Storage	
Precautions	Keep away from heat. Keep away from sources of ignition. Keep away from combustible materials. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. DO NOT ingest. DO NOT breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
Storage	Keep container dry. Keep in a cool place. Ground all equipment containing material. Oxidizing 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. Lab coat. 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. Dust respirator. Boots. Gloves. A self contained breathing apparatus

Protection in
Case of a
Large Spill

sufficient; consult a specialist BEFORE handling this product.

Exposure
Limits

Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid.	Odor	Not available.
Molecular Weight	228.2	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	1.98 (Water = 1)		
Vapor Pressure	Not available.		
Vapor Density	7.9 (Air = 1)		
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. Soluble in 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.
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Toxicity to Animals Acute oral toxicity (LD50): 820 mg/kg (Rat).

Chronic Effects on Humans The substance is toxic to lungs, mucous membranes. Toxicity of the product to the reproductive system: Not available.

Other Toxic Effects on Humans Extremely dangerous in case of eye contact (irritant). Very dangerous in case of skin contact (irritant), of ingestion, of inhalation. Slightly dangerous to dangerous in case of skin contact (corrosive). Very slightly to slightly dangerous in case of skin contact (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 Not applicable.

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 DOT CLASS 5.1: Oxidizer.

Identification Ammonium Persulfate UN1444 III

Special Provisions for Transport No additional remark.

DOT (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

Pensylvania Right-To-Know, Hazardous substance List, Hazardous Substances and Special hazardous Substances on the list must be identified when present in products. Components present in this product at a level which could require reporting under the statute are:

NONE

Massachusetts Right-To-Know, Substance List (MSL) Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products. Components present in this product at a level which could require reporting under the statute are:

NONE

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal or greater than the reportable quantities (RQs) in 40 CFR 302.4. 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)

WHMIS CLASS C: Oxidizing material.
WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC)

R8- Contact with combustible material may cause fire.
R9- Explosive when mixed with combustible material.

Other Classifications

WHMIS (Canada)

WHMIS CLASS C: Oxidizing material.
WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

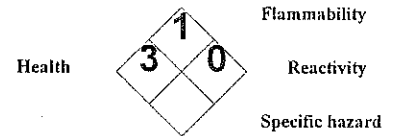
DSCL (EEC)

R8- Contact with combustible material may cause fire.
R9- Explosive when mixed with combustible material.
R22- Harmful if ingested.
R41- Risk of serious damage to eyes.
R42- May cause sensitization by inhalation.

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	1
Reactivity	0
Personal Protection	

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



Personal Protective Equipment



Protective Gloves (impervious).



Lab coat.



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) A1225, A1227, A1230

Other Special Considerations No additional remark.

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

Verified by E. Brull.
Name

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.

SULFURIC ACID WATER WHITE

REVISION OF: 06-24-88

PHOTOGRAPHERS FORMULARY INC
PO BOX 5165
MISSOULA, MT 59806

ORDER NO:
PROD NO: 04722007

VAN WATERS & ROGERS INC. 1600 NORTON BLDG. SEATTLE, WA 98104-1564

-----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

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

PRODUCT NAME: SULFURIC ACID CAS NO.: 7664-93-9
COMMON NAMES/SYNONYMS: SULFURIC ACID; VW&R CODE: T1361
OF VITRIOL; SULFURIC ACID > 93%; SULFURIC ACID > 66 DEG BE;
SULFURIC ACID > 1.83 SPECIFIC GRAVITY
FORMULA: H2 S O4
HAZARD RATING (NFPA 49) DATE ISSUED: 07/87
HEALTH: 3 SUPERCEDES: 01/87
FIRE: 0 HAZARD RATING SCALE:
REACTIVITY: 2 0=MINIMAL 3=SERIOUS
SPECIAL: NO WATER 1=SLIGHT 4=SEVERE
2=MODERATE

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

COMPONENT	CAS NO.	%	EXPOSURE LIMITS, MG/M3			HAZARD
			OSHA PEL	ACGIH TLV	OTHER LIMIT	
SULFURIC ACID	7664-93-9	>93	1	1	1 (DUPONT)	CORROSIVE
WATER	7732-18-5	BALANCE	NONE	NONE	NONE	NONE

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

BOILING POINT, DEG F: A = 529; VAPOR PRESSURE, MM HG/20 DEG C: A,B =
B = 590
FREEZING POINT, DEG F: A = -20; VAPOR DENSITY (AIR=1): N/A
B = 30
SPECIFIC GRAVITY (WATER=1): A = 1.835; WATER SOLUBILITY, %: COMPLETE
B = 1.84
APPEARANCE AND ODOR: COLOR- EVAPORATION RATE (BUTYL ACETATE=1): <1
LESS TO PALE YELLOW, OILY LIQUID. ODORLESS.

A = 93% OR 66 DEG BE SULFURIC ACID; B = 99% SULFURIC ACID

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

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

SULFURIC ACID WATER WHITE

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WATER FOR 30 MINUTES, LIFTING THE UPPER AND LOWER EYELIDS OCCASIONALLY. GET IMMEDIATE MEDICAL ATTENTION.

IN CASE OF SKIN CONTACT: IMMEDIATELY FLUSH SKIN WITH LOTS OF RUNNING WATER FOR 30 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES; WASH BEFORE REUSE. GET IMMEDIATE MEDICAL ATTENTION.

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.

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

PRIMARY ROUTES OF EXPOSURE: SKIN OR EYE CONTACT

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: VAPORS AND MISTS ARE EXTREMELY CORROSIVE TO THE NOSE, THROAT, AND MUCOUS MEMBRANES. BRONCHITIS, PULMONARY EDEMA, AND CHEMICAL PNEUMONITIS MAY OCCUR. IRRITATION, COUGHING, CHEST PAIN, AND DIFFICULTY IN BREATHING MAY OCCUR WITH BRIEF EXPOSURE WHILE PROLONGED EXPOSURE MAY RESULT IN MORE SEVERE IRRITATION AND TISSUE DAMAGE. BREATHING HIGH CONCENTRATIONS MAY RESULT IN DEATH.

EYE CONTACT: VAPORS, LIQUID, AND MISTS ARE EXTREMELY CORROSIVE TO THE EYES. BRIEF CONTACT OF THE VAPORS WILL BE SEVERELY IRRITATING. BRIEF CONTACT OF THE LIQUID OR MISTS WILL SEVERELY DAMAGE THE EYES AND PROLONGED CONTACT MAY CAUSE PERMANENT EYE INJURY WHICH MAY BE FOLLOWED BY BLINDNESS.

SKIN CONTACT: VAPORS, MISTS, AND LIQUID ARE EXTREMELY CORROSIVE TO THE SKIN. VAPORS WILL SEVERELY IRRITATE THE SKIN AND LIQUID AND MISTS WILL SEVERELY BURN THE SKIN. PROLONGED LIQUID CONTACT WILL BURN AND DESTROY SURROUNDING TISSUE AND DEATH MAY ACCOMPANY BURNS WHICH EXTEND OVER LARGE PORTIONS OF THE BODY.

SWALLOWED: VAPORS, MISTS, AND LIQUID ARE EXTREMELY CORROSIVE TO THE MOUTH AND THROAT. SWALLOWING THE LIQUID BURNS THE TISSUES, CAUSES SEVERE ABDOMINAL PAIN, NAUSEA, VOMITING, AND COLLAPSE. SWALLOWING LARGE QUANTITIES CAN CAUSE DEATH.

CHRONIC EFFECTS OF EXPOSURE: MAY CAUSE EROSION OF THE TEETH, LESIONS ON THE SKIN, BRONCHIAL IRRITATION, COUGHING, AND PNEUMONIA.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: ACUTE AND CHRONIC RESPIRATORY DISEASES.

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

ORAL: RAT LD50 = 2,140 MG/KG

DERMAL: NO DATA FOUND

INHALATION: GUINEA PIG LC50 = 18 MG/M3

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: ALTHOUGH ONE LIMITED STUDY OF REFINERY WORKERS DID SUGGEST A POSSIBLE LINK BETWEEN SULFURIC ACID EXPOSURE AND LARYNGEAL CANCER, THE STUDY WAS LIMITED BECAUSE OF THE SMALL NUMBER OF WORKERS AND THE MIXED EXPOSURES TO SEVERAL OTHER MATERIALS INCLUDING DIETHYL SULFATE, AN IARC AND NTP CARCINOGEN. BASED ON THE OVERALL WEIGHT OF EVIDENCE FROM ALL ANIMAL TOXICITY AND HUMAN EPIDEMIOLOGICAL STUDIES, NO CAUSE-AND-EFFECT RELATIONSHIP BETWEEN CANCER AND SULFURIC ACID EXPOSURE HAS BEEN SHOWN. INDIVIDUALS WITH PREEXISTING DISEASE OF THE LUNGS MAY HAVE INCREASED USCEPTIBILITY TO THE TOXICITY OF EXCESSIVE EXPOSURES.

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

VENTILATION: LOCAL MECHANICAL EXHAUST VENTILATION CAPABLE OF MAIN-

PROD: 04722007 09:23:42 14 OCT 1988 CUST:

INVOICE:

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MAINTAINING EMISSIONS AT THE POINT OF USE BELOW THE PEL.

RESPIRATORY PROTECTION: WEAR A NIOSH-APPROVED RESPIRATOR APPROPRIATE FOR THE VAPOR OR MIST CONCENTRATION AT THE POINT OF USE. APPROPRIATE RESPIRATORS MAY BE A FULL FACEPIECE AIR-PURIFYING CARTRIDGE RESPIRATOR EQUIPPED FOR ACID GASES/MISTS, A SELF-CONTAINED BREATHING APPARATUS IN THE PRESSURE DEMAND MODE, OR A SUPPLIED-AIR RESPIRATOR.

EYE PROTECTION: CHEMICAL GOGGLES AND FULL FACESHIELD UNLESS A FULL FACEPIECE RESPIRATOR IS ALSO WORN. 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: ACID-RESISTANT SLICKER SUIT WITH RUBBER APRON, RUBBER BOOTS WITH PANTS OUTSIDE, AND RUBBER GLOVES WITH GAUNTLETS.

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

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

FLASH POINT, DEG F: NONE **FLAMMABLE LIMITS IN AIR, %**
METHOD USED: N/A **LOWER:** N/A **UPPER:** N/A
EXTINGUISHING MEDIA: THIS MATERIAL IS NOT COMBUSTIBLE. USE EXTINGUISHING 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.

UNUSUAL FIRE AND EXPLOSION HAZARDS: EXTINGUISH ALL NEARBY SOURCES OF IGNITION SINCE FLAMMABLE HYDROGEN GAS WILL BE LIBERATED FROM CONTACT WITH SOME METALS. KEEP WATER OUT OF CONTAINERS.

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

STABILITY: STABLE **POLYMERIZATION:** WILL NOT OCCUR
CONDITIONS TO AVOID: NONE

MATERIALS TO AVOID: ALKALIS, OXIDIZING OR REDUCING MATERIALS, CYANIDES, SULFIDES, OR COMBUSTIBLE MATERIALS. REACTS WITH MANY METALS. CONCENTRATED ACID REACTS VIOLENTLY WITH WATER.

HAZARDOUS DECOMPOSITION PRODUCTS: MAY LIBERATE CARBON MONOXIDE, CARBON DIOXIDE, AND OXIDES OF SULFUR.

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

ACTION TO TAKE FOR SPILLS OR LEAKS: WEAR ACID-RESISTANT SLICKER SUIT AND COMPLETE PROTECTIVE EQUIPMENT INCLUDING RUBBER GLOVES, RUBBER BOOTS, AND A SELF-CONTAINED BREATHING APPARATUS IN THE PRESSURE DEMAND MODE OR A SUPPLIED-AIR RESPIRATOR. IF THE SPILL OR LEAK IS SMALL, A FULL FACEPIECE AIR-PURIFYING CARTRIDGE RESPIRATOR EQUIPPED FOR ACID GASES MAY BE SATISFACTORY. IN ANY EVENT, ALWAYS WEAR EYE PROTECTION. REMOVE ALL SOURCES OF IGNITION. FOR SMALL SPILLS OR DRIPS, MOP OR WIPE UP AND DISPOSE OF IN DOT-APPROVED WASTE CONTAINERS. FOR LARGE SPILLS, CONTAIN BY DIKING WITH SOIL OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND CAREFULLY NEUTRALIZE WITH SODA ASH OR LIME. IF SODA ASH IS USED, PROVIDE ADEQUATE VENTILATION TO DISSIPATE THE CARBON DIOXIDE GAS. KEEP NON-NEUTRALIZED MATERIAL 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.

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

STORAGE AND HANDLING PRECAUTIONS: STORE IN A COOL, DRY, WELL-VENTILATED PLACE AWAY FROM INCOMPATIBLE MATERIALS. VENT CONTAINER CAREFULLY, AS NEEDED, TO RELIEVE PRESSURE. KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE. DO NOT USE PRESSURE TO EMPTY CONTAINER. WASH THOROUGHLY AFTER HANDLING. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.

REPAIR AND MAINTENANCE PRECAUTIONS: DO NOT CUT, GRIND, WELD, OR DRILL ON OR NEAR THIS CONTAINER.

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.

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

CONTACT DOUGLAS EISNER, TECHNICAL DIRECTOR, VAN WATERS & ROGERS INC.
DURING BUSINESS HOURS, PACIFIC TIME (206)447-5911

----- NOTICE -----

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----- REVISION -----

07/87: REPORTED ADDITIONAL EXPOSURE LIMIT AND OTHER TOXICITY DATA.
**** E N D O F M S D S ****

PROD: 04722007 09:23:42 14 OCT 1988 CUST:

INVOICE:

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

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
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

LOCAL 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.

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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.

C. 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.

D. 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):

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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.

MELTING POINT: Decomposes 900 Degrees C

BOILING 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

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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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: 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, PB81 - 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 55F, "Sodium Sulfite", Oct. 1978.

K. ADDITIONAL INFORMATION

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

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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. For 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.

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