

PHOTOGRAPHERS' FORMULARY INC.

PYRO-TRIETHANOLAMINE FILM DEVELOPER

MAKES 2- GALLONS OF WORKING SOLUTION

This formula was published July, 1984 issue of Petersen's Photographic in an article by Paul Farber. The response of customers ordering individual chemicals to make the formula was so overwhelming, we contacted Mr. Farber for permission to make up a kit. You will find a copy of Mr. Farber's Article enclosed as an instruction sheet.

CHEMICALS CONTAINED IN THIS KIT

Chemical	Amount
Metol	17.8 g
Oxalic Acid	1.7 g
Potassium Metabisulfite	4.3 g
Sodium Sulfite	140.0 g
Pyrogallic Acid (Pyro)	51.2 g
Triethanolamine	133 ml

Water to make 1 gallon of concentrate. Mix chemicals in order given.

CHEMICAL SAFETY

All chemicals are dangerous and must be treated with respect. Please read the chemical warnings on each package.

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

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 copious amounts of water (soap and water is best). If pyrogallol (solid or in solution) should come in contact with your skin, wash the area with water followed with 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 NOT WANT TO ASSUME ALL RISK, PLEASE RETURN THE CHEMICALS TO US FOR A FULL REFUND.

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

TO USE

Follow Paul Farber's article which is enclosed.

DO NOT USE AN ACID STOP OR AN ACID FIX. DOING SO WILL WASH AWAY THE STAIN OF THE PYRO.



PHOTOGRAPHERS' FORMULARY INC.

PO Box 950 • Condon MT 59826 • 406-754-2891 • FAX 406-754-2896
E-MAIL formulary@montana.com

WHERE'S THE WATER?

Paul. R. Farber

I admit it, it was a dumb error on my part. As we approached shipping deadline, I neglected to read the galley of my recent column, "Big, Beautiful Prints," in the April 1984 issue. Shame on me. The error prompted many alert readers to write.

The error? The mixing instructions. In the original article I was quoted as saying, "In use, one merely adds 50 milliliters of 'A' and 50 milliliters of 'B' to make the working solution (for the Beutler developer). What was omitted was the reference to adding water to make a working solution.

So the following are the mixing directions as they should have appeared: Into 500 ml of distilled or purified water, add 50 ml of "A" and 50 ml of "B" to make a working solution (of 600 ml). Hope I didn't inconvenience anyone too much. But, given the correct dilution, try it now and be prepared for extraordinary results.

Among the letters requesting the correct information, there was a letter from a reader requesting information on an unusual developer, no longer in use. It was (and still is) called "Pyro Triethanolamine," and was first published by the late Will Connell in an old, old issue of the now-defunct *U.S. Camera* magazine.

Pyro Triethanolamine was a developer primarily intended for the production of large negatives. Its main claim to fame was its smooth grain structure and full emulsion-speed capability. It seemingly lasted longer than other developers I used. The developer was actually replenished by adding fresh developer to make up the lost volume, and it would go on for years, until one had to use a plumber's plunger to get it to go down the drain (this state of affairs being reached when one had to hammer the film hangers into the gunk for processing).

Anyhow, as I said, a reader who remembers it as fondly as I do, wrote to ask if the formula was still available since he was once again going to process large-format negatives. Well, gentle reader, the answer to your question is "Yes," the formula is still available, and the following is the original formula as published by Will Connell so many, many years ago.

PYRO TRIETHANOLAMINE

Oxalic Acid.....	26 grains
Potassium metabisulfite.....	66 grains
Pyrogalllic acid (Pyro).....	1½ oz, 134 grains
Metol.....	274 grains
Sodium sulfite.....	4½ oz
Triethanolamine.....	4½ oz (liquid)
Water to make:.....	1 gal

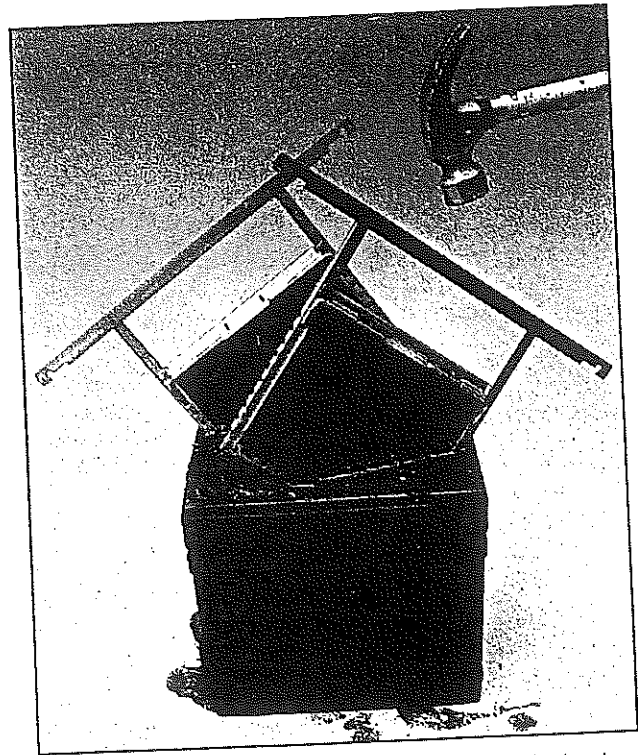
chemicals when it comes to photo chemistry, and may not be easily available. If your local chemical supplier does not have the chemicals, try contacting Photographers' Formulary, Box 5105, Missoula, MT 59806; telephone (406) 543-4534. They stock all the chemicals needed for this formula, and can take your order by phone.

The above formula makes a 2X concentrated solution that should be diluted 1:1 with water to make the working solution.

The remainder of the concentrate is used as a replenisher by merely adding it to the working developer to maintain the original volume. Actually, the remainder of the concentrate should be put into several smaller bottles to preclude oxidation. The working solution lasts almost indefinitely, and when it gets to the consistency of glue, it should be dumped and a new batch started.

Potassium metabisulfite can be replaced by an equal quantity of sodium bisulfite, or eliminated completely. As with other developers, attention to weighing out the chemicals should be your second priority, the first being one of care when handling chemicals. Pyro stains fingers, white shirts and almost everything it comes into contact with, so extra caution should be used when handling this chemical.

As usual, water is also a consideration, and deionized or distilled water should



be used, with deionized water getting it nod. Tap water should be avoided like the plague.

Use is simple enough. The original instructions called for a development time of nine minutes at 68° F, with occasional agitation. In actual tests, with today's emulsions, the development time should be somewhat shorter. You will have to do your own tests to determine optimum development times.

On a whim, a few rolls of Kodak's Tri 35mm film were processed just for fun. The time of development was 5½ minutes at 70° F and the results were incredible. The negatives were beautiful, and the resulting prints were exceptional. Other tests are planned for other Kodak, Ilford, and Agfa films as well.

The greatest joy came with processing some 120 film, though, and the negatives and prints were sensational. It was worth the little extra effort to locate the necessary chemicals. Pyro Triethanolamine developer when used with today's extraordinary films, proved to be terrific.

In all, once again, it seems everything that goes around comes around. Some of the old developers in favor so many years ago and then discarded when new products were introduced have properties making them as attractive as some of the products we use today, and in some instances, more so. ☐

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: METOL

GENERAL USE: Chemical processing
 PRODUCT DESCRIPTION: White to light beige crystals, odorless

CANTON

SUPPLIER'S NAME : CANTON CHEM, INC.

DATE PREPARED: April 4, 2004
 SUPERSEDES: New

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ADDRESS: 6310 KERNE CT., CLARKSVILLE, MD 21029 (USA)

WWW.CANTONCHEM.COM & WWW.SHANPAR.COM

PH: 410-960-5455 FAX: 410-510-1722

EMERGENCY TELEPHONE NUMBER
 Chemtel (800) 255-3924

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	CAS #	%	OSHA PEL		ACGIH TWA		SARA TITLE III	RQ LBS
			PPM	MG/M3	PPM	MG/M3		
4-(Methylamino)phenol sulfate	55-55-0	(by weight)	not established					

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Crystals, contact with eyes and skin may cause irritation. Material is harmful if swallowed, may cause skin sensitization upon contact. Hazard symbols for this product: Xn, N. Risk Phrases - R 43, 48/22, 51/53

POTENTIAL HEALTH EFFECTS

INHALATION: Inhalation of airborne dust particles is harmful and irritating to respiratory tract.

SKIN: Contact with skin may cause irritation. Material is harmful if absorbed through the skin.

EYES: Contact with eyes may cause irritation.

INGESTION: Material is harmful if swallowed. May cause gastric distress, stomach pains, vomiting and diarrhea.

CARCINOGENICITY

NTP? No

No

IARC MONOGRAPHS?

No

OSHA REGULATED?

No

MATERIAL SAFETY DATA SHEET

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SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air; wash mouth and nasal passages with water repeatedly; if breathing difficulties persist seek medical attention.

SKIN: Remove contaminated clothing; wash affected area with soap and water; launder contaminated clothing before reuse; if irritation persists, seek medical attention.

EYES: Remove contact lenses. Flush eyes with clear running water for 15 minutes while holding eyelids open; if irritation persists, seek medical attention.

INGESTION: Give two glasses of water for dilution; DO NOT induce vomiting; never give anything by mouth to an unconscious person; seek medical attention.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT (METHOD USED) Non-flammable	FLAMMABLE LIMITS	LEL: Not applicable	UEL: Not applicable
	AUTOIGNITION TEMPERATURE:	Not determined	NFPA CLASS: None

GENERAL HAZARDS: Product is not considered flammable or combustible. Products of combustion include compounds of carbon, hydrogen and oxygen, including carbon monoxide, oxides of nitrogen and sulfur.

EXTINGUISHING MEDIA
Carbon dioxide, water, water fog, dry chemical, chemical foam.

FIRE FIGHTING PROCEDURES
None

UNUSUAL FIRE AND EXPLOSION HAZARDS
None

HAZARDOUS COMBUSTION PRODUCTS
Smoke, toxic fumes, oxides of carbon, nitrogen and sulfur.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Recover and segregate product for reuse; shovel product into approved container for disposal. Do not discharge into lakes, ponds, streams or public waters.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container closed when not in use; protect containers from abuse; store containers in cool, dry area. Keep this and other chemicals out of reach of children.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**ENGINEERING CONTROLS**

The use of local exhaust ventilation and airborne particle collection is recommended. No other special controls are indicated.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): NIOSH approved respirator designed to remove airborne particulate present in excess of maximum allowable concentrations due to secondary operations such as mixing, spraying, sanding, buffing, etc. Refer to 29 CFR 1910.134 or European Standard EN 149 for regulations.

PROTECTIVE GLOVES: Neoprene or nitrile rubber gloves.

EYE PROTECTION: Protective eyeglasses or chemical safety goggles. Refer to 29 CFR 1910.133 or European Standard EN 166.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Safety eyewash station nearby.

WORK / HYGIENIC PRACTICES: Practice safe workplace habits. Minimize body contact with this, as well as all chemicals in general.

MATERIAL SAFETY DATA SHEET

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

VAPOR PRESSURE (MM Hg) Not applicable	VAPOR DENSITY (AIR = 1) Not applicable
SPECIFIC GRAVITY (WATER = 1) 660 kg / m ³ (bulk density)	EVAPORATION RATE (WATER = 1) Not applicable
SOLUBILITY IN WATER Appreciable, 50 gms / liter	FREEZING POINT Not determined
pH 3.5 - 4.5 (50 gms / liter aqueous solution)	APPEARANCE AND ODOR White to light beige crystals, odorless
BOILING POINT Not applicable	PHYSICAL STATE Solid
VISCOSITY Solid	VOLATILE ORGANIC COMPOUNDS (Total VOC's) None

SECTION 10 - STABILITY AND REACTIVITY

STABILITY UNSTABLE: STABLE: XXX	CONDITIONS TO AVOID: Avoid generating airborne dust.
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizers, strong acids.	

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Decomposition will not occur if handled and stored properly. In case of a fire, oxides of carbon, hydrocarbons, nitrogen and sulfur, toxic fumes, and smoke may be produced.

HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: XXX	CONDITIONS TO AVOID: None
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SECTION 11 - TOXICOLOGICAL INFORMATION

Hazardous Ingredients	CAS #	EINECS #	LD50 of Ingredient (Specify Species and Route)	LC50 of Ingredient (Specify Species)
4-(Methylamino)phenol sulfate	55-55-0	200-237-1	565 mg / kg Oral - rat	Not established

SECTION 12 - ECOLOGICAL INFORMATION

No data are available on the adverse effects of this material on the environment. Neither COD nor BOD data are available. Based on the chemical composition of this product it is assumed that the mixture can be treated in an acclimatized biological waste treatment plant system in limited quantities. However, such treatment should be evaluated and approved for each specific biological system. None of the ingredients in this mixture are classified as a Marine Pollutant.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of in accordance with Local, State, and Federal Regulations, do not discharge into lakes, ponds, streams or public waters. Product is classified as hazardous waste. Refer to "40 CFR Protection of Environment Parts 260 - 299" for complete waste disposal regulations. Consult your local, state, or Federal Environmental Protection Agency before disposing of any chemicals.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: Not Regulated

DOT HAZARD CLASS / Pack Group: Not regulated
 REFERENCE: Not Applicable
 UN / NA IDENTIFICATION NUMBER: None
 LABEL: None Required
 HAZARD SYMBOLS: None

IATA HAZARD CLASS / Pack Group: Not regulated
 IMDG HAZARD CLASS: Not regulated
 RID/ADR Dangerous Goods Code: Not regulated
 UN TDG Class / Pack Group: Not regulated

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EC, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

MATERIAL SAFETY DATA SHEET

SECTION 15 - REGULATORY INFORMATION

TSCA (Toxic Substance Control Act)

All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has been granted in accordance with 40 CFR 723.50.

SARA TITLE III (Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories

Immediate health

313 Reportable Ingredients:

None

CERCLA (Comprehensive Response Compensation and Liability Act)

None

CPR (Canadian Controlled Products Regulations)

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

IDL (Canadian Ingredient Disclosure List)

Components of this product identified by CAS number and listed on the Canadian Ingredient Disclosure List are shown in Section 2.

DSL / NDSL (Canadian Domestic Substances List / Non-Domestic Substances List)

Components of this product identified by CAS number are listed on the DSL or NDSL and may or may not be listed in Section 2 of this document. Only ingredients classified as "hazardous" are listed in Section 2 unless otherwise indicated.

EINECS (European Inventory of Existing Commercial Chemical Substances)

Components of this product identified by CAS numbers are on the European Inventory of Existing Commercial Chemical Substances.

EC Risk Phrases

- R43 May cause sensitization by skin contact.
- R48/22 Harmful danger of serious damage to health by prolonged exposure if swallowed.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

EC Safety Phrases

- S37/39 Wear suitable gloves and eye/face protection.
- S46 If swallowed, seek medical advice immediately and show this container or label.
- S60 This material and its container must be disposed of as hazardous waste.
- S61 Avoid release to the environment. Refer to special instructions / safety data sheets.

SECTION 16 - OTHER INFORMATION

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

HMIS HAZARD RATINGS

HEALTH	2	0 = INSIGNIFICANT	3 = HIGH
FLAMMABILITY	0	1 = SLIGHT	4 = EXTREME
REACTIVITY	0	2 = MODERATE	

PERSONAL PROTECTIVE EQUIPMENT E Safety Glasses, Gloves, Dust Respirator

REVISION SUMMARY:

This MSDS has been revised in the following sections:

No revisions available

MSDS Prepared by: Comprehensive Data Base, Inc.
 P.O. Box 5604
 Lakeland, FL 33807 USA
 (863) 644 - 3298 www.compdatabase.com

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

10-1050

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MATERIAL SAFETY DATA SHEET

MAINFRAME UPLOAD DATE: 02/06/06

VERSION: 005

PRODUCT: POTASSIUM METABISULFITE

ORDER NO: 245082

PROD NO : 733856

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

UNIVAR USA INC.

(425)889-3400

17425 NE UNION HILL RD , REDMOND

, WA 98052

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

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

PRODUCT NAME: POTASSIUM METABISULFITE
MSDS NUMBER: BA201279
DATE ISSUED: 11/11/2005
SUPERSEDES: 01/17/2005
ISSUED BY: 009130

Material Safety data sheet

1. Substance/preparation and company identification

Company: BASF Corporation
100 Campus Drive
Florham Park, NJ 07932
24 Hour Emergency Response Information
CHEMTREC: (800) 424-9300
BASF HOTLINE: (800) 832-HELP

Molecular formula: K(2)S(2)O(5)
Synonyms: POTASSIUM METABISULFITE FOOD GRADE

2. Composition/information on ingredients

PRODUCT: POTASSIUM METABISULFITE

ORDER NO: 245082

PROD NO : 733856

CAS Number	Content (W/WI	Chemical name
14731-55-8	>= 98.0 %	dipotassium disulphite
7681-57-4	<= 2.0 %/0	Sodium metabisulfite

3. Hazard identification

Emergency overview

WARNING: RISK OF SERIOUS DAMAGE TO EYES.

May cause sensitization by skin contact.

May cause sensitization by inhalation.

INGESTION MAY CAUSE GASTRIC DISTURBANCES.

Avoid contact with the skin, eyes and clothing.

Avoid inhalation of dusts.

Use with local exhaust ventilation.

Wear a NIOSH-certified (or equivalent) particulate respirator.

Wear NIOSH-certified chemical goggles.

Wear chemical resistant protective gloves.

Wear protective clothing.

Eye wash fountains and safety showers must be easily accessible.

Potential health effects

Primary routes of exposure

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Virtually nontoxic after a single ingestion. Inhalation-risk test (IRT): No mortality within 8 hours as shown in animal studies. The inhalation of a highly saturated vapor-air mixture represents no acute hazard.

Irritation:

Risk of serious damage to eyes. Ingestion may cause irritation of the gastrointestinal tract.

Sensitization:

A sensitizing effect on particularly sensitive individuals cannot be excluded.

Repeated dose toxicity:

No known chronic effects.

Potential environmental effects

Aquatic toxicity:

PRODUCT: POTASSIUM METABISULFITE

ORDER NO: 245082

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Acutely harmful for aquatic organisms.

4. First-aid measures

General advice:

Remove contaminated clothing.

If inhaled:

If difficulties occur after dust has been inhaled, remove to fresh air and seek medical attention. After inhalation of decomposition products:

Immediately inhale corticosteroid dose aerosol.

If on skin:

Wash thoroughly with soap and water.

If irritation develops, seek medical attention.

If in eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Rinse mouth and then drink plenty of water. If symptoms persist, seek medical advice.

Note to physician

Hazards: Risk of sulfur dioxide formation by reaction with gastric acid after swallowing.

5. Fire-fighting measures

Suitable extinguishing media:

Foam

Hazards during fire-fighting:

Sulphur dioxide,

The substances/groups of substances mentioned can be released if the product is involved in a fire.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Contaminated extinguishing water must be disposed of in accordance with official regulations. In case of fire and/or explosion do not breathe fumes.

NFPA Hazard codes:

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PRODUCT: POTASSIUM METABISULFITE

ORDER NO: 245082

PROD NO : 733856

Health : 2 Fire: 0 Reactivity: 0 Special:

6. Accidental release measures

Personal precautions:

Use personal protective clothing. Ensure adequate ventilation. Avoid dust formation. Avoid contact with eyes.

Environmental precautions:

Do not discharge into drains/surface waters/groundwater. Do not discharge into the subsoil/soil.

Cleanup:

Sweep/shovel up. Correctly dispose of recovered product immediately.

Avoid raising dust.

7. Handling and storage

Handling

General advice:

Use only in well-ventilated areas. Avoid dust formation.

Protection against fire and explosion:

The substance/product is non-combustible. No special precautions necessary.

Storage

General advice:

Keep in a cool place. Keep container dry. Keep container in a well-ventilated place.

Storage incompatibility:

General: Segregate from acids and acid forming substances. Segregate from oxidants. Specific: Sodium nitrate, sodium nitrite, sodium sulfide,

8. Exposure controls and personal protection

Components with workplace control parameters

Sodium metabisulfite

ACGIH

TWA value 5 mg/m³ ;

Advice on system design:

Provide local exhaust ventilation to control dust.

Personal protective equipment:

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Respiratory protection:

Wear a NIOSH-certified acid gas/organic vapor/particulate respirator.
Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection:

Wear chemical resistant protective gloves. Consult with glove manufacturer for testing data.

Eye protection:

Tightly fitting safety goggles (chemical goggles).

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. Hands and/or face should be washed before breaks and at the end of the shift. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Form: powder
Odor: faint odor, of sulfur dioxide
Color: white
pH value: 3.8 - 4.6 (5 % (m))
decomposition point: 150 deg C
Vapor pressure: The vapor pressure of the aqueous solution consists of the partial pressure for water and the partial pressure for sculpture dioxide.
Bulk density: 1,100 - 1,300 kg/m3
Partitioning coefficient n- -4 (25 deg C) (OECD Guideline 107)
octanol/water (log Pow):
Solubility in water: 450 g/L (20 deg C)

10. Stability and reactivity

Conditions to avoid:

No data available.

Substances to avoid:

acids, oxidizing agent, nitrites, nitrates, sulfides

Hazardous reactions:

Reacts with nitrites. Reacts with nitrates. Reacts with oxidizing agents.

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Decomposition products:

Hazardous decomposition products: Sulphur dioxide

Thermal decomposition:

> 150 deg C

To avoid thermal decomposition, do not overheat.

11. Toxicological information

Acute toxicity

Oral:

LD50/rat: 2,300 mg/kg (BASF-Test)

Inhalation:

rat: / 8 h(BASF-Test)

Inhalation-risk test (IRT): No mortality within 8 hours as shown in animal studies. The inhalation of a highly saturated vapor-air mixture represents no acute hazard.

Skin irritation:

rabbit non-irritant (BASF-Test)

Eye irritation :

rabbit Risk of serious damage to eyes. (OECD Guideline 405)

Chronic toxicity

Genetic toxicity:

In the majority of studies performed with microorganisms and in mammalian cell culture, a mutagenic effect was not found. A mutagenic effect was also not observed in in vivo tests.

Reproductive toxicity:

The results of animal studies gave no indication of a fertility impairing effect.

Developmental toxicity/teratogenicity:

No indications of a developmental toxic / teratogenic effect were seen in animal studies.

12. Ecological information

Environmental fate and transport

Biodegradation:

Evaluation: Inorganic product which cannot be eliminated from water by

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biological purification processes.

Bioaccumulation:

No significant accumulation in organisms is expected as a result of the distribution coefficient of noctanol/water (log Pow).

Chemical oxygen demand (COD):
(calculated) approx. 140 mg/g

Environmental toxicity

Acute and prolonged toxicity to fish:
OECD 203; ISO 7346; 84/449/EEC, C.1 static
zebra fish/LC50 (96 h): 460 - 1,000 mg/L
See user defined text.

Acute toxicity to aquatic invertebrates:
Directive 79/831/EEC static
Daphnia magna/EC50 (48 h): 88.8 mg/L
The product has not been tested. The statement has been derived from the properties of the hydrolysis products.

Toxicity to aquatic plants:
other static
green algae/EC50 (72 h): 48.1 mg/L
The product has not been tested. The statement has been derived from the properties of the hydrolysis products.

Toxicity to microorganisms:
DIN 38412 Part 8 aquatic
Bacteria/EC10 (17 h): 32 mg/L

Other ecotoxicological advice:
Higher concentrations of the substance may cause a strong chemical oxygen consumption in biological sewage-treatment plants and/or waterways. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with national, state and local regulations.
Do not discharge into drains/surface waters/groundwater.

14. Transport information

Reference Bill of Lading

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15. Regulatory information

Federal Regulations

Registration status:

TSCA, US

released / listed

OSHA hazard category: Skin and/or eye irritant, Sensitizer

SARA hazard categories (EPCRA 311/312): Acute

State regulations

State RTK

CAS Number

Chemical name

State RTK

7681-57-4

Sodium metabisulfite

MA, NJ, PA

16. Other information

HMIS III rating

Health: 2 Flammability: 0 Physical hazard: 0

HMIS uses a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates high hazard.

**THATCHER COMPANY MATERIAL SAFETY DATA SHEET****PRODUCT: SODIUM SULFITE, CATALYZED**

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MSDS Date: December 2, 2003

Emergency Contact: 1-800-424-9300

SECTION I**PRODUCT NAME:** Sodium Sulfite, Catalyzed**CHEMICAL NAME:** Sodium Sulfite, catalyzed**CHEMICAL FAMILY:** Inorganic Sulfite**SYNONYMS:** B 501; Catalyzed Anhydrous Sodium Sulfite**FORMULA:** Na₂SO₃ + catalyst**DOT SHIPPING INFORMATION:**

Not DOT Regulated

SECTION II - HAZARDOUS INGREDIENTS

This material contains no ingredients which are known by Thatcher Company to be hazardous unless listed below.

HAZARDOUS MATERIAL	CAS NUMBER	w/w %	EXPOSURE LIMITS IN AIR
Sodium Sulfite	7757-83-7		TLV = 5 mg/m ³ *
Cobalt Sulfate (as Co)	10124-43-3		TLV = 0.05 mg/m ³ * PEL = 0.1 mg/m ³

*recommended

The specific identity of some ingredients may be withheld for confidential business purposes. However, all known potential health effects from exposure to these ingredients are being addressed.

SECTION III - PHYSICAL DATA**BOILING POINT (F):** N/A**SPECIFIC GRAVITY:** 2.633 @ 15.4 EC**VAPOR PRESSURE (mm Hg):** N/A**% VOLATILE, BY VOLUME:** N/A**VAPOR DENSITY (air = 1):** N/A**EVAPORATION RATE:** N/A**SOLUBILITY IN WATER:** Soluble**APPEARANCE AND ODOR:** White to pink crystals or powder with saline, sulfurous taste.**SECTION IV - FIRE AND EXPLOSION DATA****FLASH POINT:** Nonflammable**FLAMMABLE LIMITS:**

Lel: N/A Uel: N/A

EXTINGUISHING MEDIA:



THATCHER COMPANY MATERIAL SAFETY DATA SHEET

PRODUCT: SODIUM SULFITE, CATALYZED

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Use any.

SPECIAL FIRE-FIGHTING PROCEDURES:

Wear self-contained breathing apparatus if necessary.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

When heated, catalyzed sodium sulfite decomposes and emits highly toxic fumes of sodium oxide and sulfur oxides.

SECTION V - REACTIVITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS OR MATERIALS TO AVOID:

None.

HAZARDOUS DECOMPOSITION PRODUCTS:

When heated, catalyzed sodium sulfite decomposes and emits toxic fumes of sodium oxide and sulfur oxides.

SECTION VI - HEALTH HAZARD DATA

CARCINOGENIC LISTING:

NTP: No ingredients listed in this section.

IARC MONOGRAPHS: No ingredients listed in this section.

OSHA 29 CFR 1910: No ingredients listed in this section.

ENTRY ROUTES & EFFECTS OF OVEREXPOSURE:

Contact: Contact may irritate eyes.

Ingestion: If swallowed, can cause irritation of stomach, nausea and gas.

STATEMENT OF PRACTICAL TREATMENT:

Contact: Flush exposed area thoroughly with soap and water. For eyes, flush with cool water for at least 15 minutes. If irritation persists, get medical attention.

Ingestion: If swallowed, give several glasses of water and call a physician immediately.

SECTION VII - SPECIAL PRECAUTIONS



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PRODUCT: SODIUM SULFITE, CATALYZED

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HANDLING AND STORAGE PRECAUTIONS:

Store in a cool, dry area .

STEPS TO BE TAKEN IF MATERIAL SPILLS OR LEAKS:

Wear proper safety equipment. Sweep up material and put into drums. Flush residue to sewer with large amounts of water (if permitted).

WASTE DISPOSAL METHOD:

Dispose of in landfill. Comply with all local, state and federal regulations.

OTHER PRECAUTIONS:

N/A

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:

Use dust mask as needed to avoid breathing dust.

VENTILATION:

Use adequate ventilation.

EYE PROTECTION:

Wear goggles or safety glasses.

SKIN PROTECTION:

Wear rubber gloves.

OTHER PROTECTIVE EQUIPMENT:

None required.

ACGIH = American Conference of Governmental Industrial Hygienists

CL = Ceiling Level

IARC = International Agency for Research on Cancer: Monographs

OSHA = Occupational Safety and Health Administration

N/A = Not Applicable

NTP = National Toxicology Program: Annual Report on Carcinogens

PEL = Permissible Exposure Level (OSHA)

TLV = Threshold Limit Value (ACGIH)

TWA = Time Weighted Average over 8 Hours

STEL = Short Term Exposure Limit (ACGIH)

ND = Not Determined

This information is, to the best of our knowledge, accurate but may not be complete. THATCHER COMPANY furnishes this information in good faith, but without warranty, representation or guarantee of its accuracy, completeness, or reliability.



MEDISCA INC.

661 Route 3, Unit C, Plattsburgh, New York, 12901

Tel.: (800) 665-6334 Fax: (518) 563-5047

Material Safety Data Sheet

I - Product Identification:

Product Name: Pyrogallol (Pyrogallic Acid) **Code:** 1557
Empirical Formula: C₆H₆O₃ **CAS #:** 87-66-1
Chemical Name: Benzene-1,2,3-trihydroxy
Uses: Has been used as antipsoriatic

II - Toxicological Information:

Irritancy: Causes burns to the eyes and skin.
Adverse effects: Harmful if absorbed through the skin, inhaled, or swallowed. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May cause allergic reaction. 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 with coagulates and decomposes. 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. Pyrogallol 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.

Irritation Data:

Skin

Toxicity Data:

Rabbit: 2mg/24H skin: Severe. Rabbit: 20mg/24H eye: Moderate.
Oral: Subcutaneous:
Human: LDLo: 28mg/kg. Man: LDLo: 120mg/kg
Mouse: LD50: 300mg/kg. Mouse: LD50: 566mg/kg.
Rabbit: LD50: 1600mg/kg.
Intraperitoneal:
Mouse: LD50: 400mg/kg.

III - Physical Data:

State: LIQUID SOLID X GAS
Description: White, odourless crystals. Becomes grayish on exposure to air and light.
Solubility: Freely soluble in water, in alcohol, and in ether; slightly soluble in benzene, in chloroform, and in carbon disulfide.
Other Physical Properties: mw: 126.11 mp: 131° - 133° C bp: 309° C d: 1.45

IV - Fire And Explosion Hazards:

Flammability: N/A
Extinguishing Media: Carbon dioxide, dry chemical powder, or appropriate foam.
Fire-Fighting: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

V - Reactivity Data;

Stability: Stable.
Incompatibilities: May discolour on exposure to air. Oxidizing agents.
Hazardous Decomp Products: Toxic fumes of carbon monoxide and carbon dioxide.
Hazardous Polymerization: Will not polymerise.

VI - Preventive Measures:

Personal Protective Equipment: Government approved respirator, compatible chemical-resistant gloves, chemical safety goggles, faceshield.



MEDISCA INC.

661 Route 3, Unit C, Plattsburgh, New York, 12901

Tel.: (800) 665-6334 Fax: (518) 563-5047

<i>Specific Engineering Controls:</i>	Safety shower and eye bath. Use only in a chemical fume hood.
<i>Spill & Leak:</i>	Wear self-contained breathing apparatus, rubber boots and gloves. Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pick up is complete.
<i>Waste Disposal:</i>	Combine with a combustible solvent. Incinerate in an incinerator equipped with afterburner and scrubber according local laws and regulations.
<i>Storage:</i>	Preserve in tight containers.
<i>Shipping:</i>	UN2811; Class 6.1; Packing group III.
VII - First Aid Measures:	
<i>Eyes:</i>	Flush with copious amounts of water for 15 minutes, separating eyelids with fingers. Call a physician.
<i>Skin:</i>	Flush with copious amounts of water for 15 minutes. Remove contaminated clothing and shoes. Call a physician.
<i>Ingestion:</i>	Call a physician. Wash out mouth with water.
<i>Inhalation:</i>	Remove to fresh air. If not breathing, give A.R. If breathing is difficult, give oxygen.
NOTE: If victim is unconscious, never induce vomiting nor give liquids. Place victim in a stable side position and keep warm.	
<i>Ecological Data:</i>	N/A
<i>Hazardous Ingredients:</i>	N/A
<i>References:</i>	Available on request

10-1463

6/7/2006

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UNIVAR USA INC.

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PRODUCT: TRIETHANOLAMINE 85%

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

UNIVAR USA INC.
6100 CARILLON POINT , KIRKLAND

(425)889-3400
, WA 98033

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

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

PRODUCT NAME: TRIETHANOLAMINE 85%
MSDS NUMBER: DZ87719
DATE ISSUED: 9/3/2004
SUPERSEDES: 2/21/2000
ISSUED BY: 008360

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product Name / TRIETHANOLAMINE 85% Commercial Grade

1.2 COMPANY IDENTIFICATION

Distributed by:

Univar USA Inc.
6100 Carillon Point
Kirkland, WA 98003-7357
425-889-5000

2. COMPOSITION INFORMATION

Component	CAS #	Amount (%W/W)
Triethanolamine	102-71-6	>= 85 (= 89%)
N,N-Diethanolamine	111-42-2	>= 11 (= 15%)

PRODUCT: TRIETHANOLAMINE 85%

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3. HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance Transparent colorless to pale amber

Physical State Liquid

Odor Mild ammoniacal

Hazards of product WARNING!

HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. HARMFUL IF SWALLOWED.

CAUSES EYE AND SKIN IRRITATION.

REPEATED EXPOSURE MAY CAUSE LIVER AND KIDNEY DAMAGE.

3.2 POTENTIAL HEALTH EFFECTS

Effects of Single Acute Overexposure

Inhalation Vapor or mist from heated material may cause irritation of the respiratory tract, experienced as nasal discomfort and discharge, with chest pain and coughing.

Eye Contact Causes moderate to severe irritation, experienced as discomfort or pain, excess blinking and tear production, with marked excess redness and swelling of the conjunctiva. Causes corneal injury.

Skin Contact Brief contact may cause slight irritation with itching and local redness. Prolonged contact may cause more severe irritation, with discomfort or pain, local redness and swelling, and possible tissue destruction.

Skin Absorption Prolonged or widespread contact may result in the absorption of potentially harmful amounts of material.

Swallowing Moderately toxic. May cause burning or painful sensations in the mouth, throat, chest, and abdomen, nausea, vomiting, and diarrhea. May cause dizziness, drowsiness, faintness, weakness, collapse, and coma.

Chronic, Prolonged or Repeated Overexposure

Effects of Repeated Overexposure Repeated overexposure may cause damage to kidneys and liver.

Other Effects of Overexposure Skin contact may cause sensitization and an allergic skin reaction in a small proportion of individuals.

Medical Conditions Aggravated by Exposure

Skin contact may aggravate an existing dermatitis. Inhalation of material may aggravate asthma and inflammatory or fibrotic pulmonary disease.

See Section 11 for toxicological information and additional information about potential health effects.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS See Section 12 for Ecological Information.

4. FIRST AID PROCEDURES

4.1 INHALATION

Remove to fresh air.

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4.2 EYE CONTACT

Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

4.3 SKIN CONTACT

Remove contaminated clothing. Wash skin with soap and water. Obtain medical attention if contact has been widespread and prolonged, or if irritation persists. Wash clothing before reuse.

4.4 SWALLOWING

If patient is fully conscious, give two glasses of water. Induce vomiting. This should be done only by medical or experienced first-aid personnel. Obtain medical attention.

4.5 NOTES TO PHYSICIAN

There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. The hazards of this material are due mainly to its severely irritant properties on skin and mucosal surfaces.

5. FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES - REFER TO SECTION 9, PHYSICAL AND CHEMICAL PROPERTIES

5.2 EXTINGUISHING MEDIA

Extinguish fires with water spray or apply alcohol-type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

5.3 FIRE FIGHTING PROCEDURES

Do not direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.

5.4 SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Use self-contained breathing apparatus, eye protection, and protective clothing.

5.5 UNUSUAL FIRE AND EXPLOSION HAZARDS

During fire, oxides of nitrogen may be evolved. See Section 8.3 - Engineering Controls

5.6 HAZARDOUS COMBUSTION PRODUCTS

Burning can produce the following products: Oxides of carbon and nitrogen. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant. Acute overexposure to the products of combustion may result in irritation of the respiratory tract.

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6. ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled: Collect for disposal.
Personal Precautions: Wear suitable protective equipment. Avoid contact with eyes and skin. See Section 8.2 - Personal Protection.

7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Avoid breathing vapor.

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

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

FOR INDUSTRY USE ONLY. Ventilation

General (mechanical) room ventilation is expected to be satisfactory where this product is stored and handled in closed equipment. Special local ventilation is needed at points where vapors can be expected to escape to the workplace air.

Other Precautions

Do not add nitrites or other nitrosating agents. A nitrosamine, which may cause cancer, may be formed. For drug applications,

7.2 STORAGE

May segregate or freeze below 16 deg C (60 deg F). Thaw and mix before sampling or using.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

8.1 EXPOSURE LIMITS

Component	Exposure Limits	Skin. Form
Triethanolamine	5 mg/m3 TWAB ACGIH	
N,N-Diethanolamine	2 mg/m3 TWAB ACGIH	Yes

In the Exposure Limits Chart above, if there is no specific qualifier (La, Aerosol) listed in the Form Column for a particular limit, the listed limit includes all airborne forms of the substance that can be inhaled.

A "Yes" in the Skin Column indicates a potential significant contribution to overall exposure by the cutaneous (skin) route, including mucous membranes and the eyes, either by contact with vapors or by direct skin contact with the substance. A "Blank" in the Skin Column indicates that exposure by the cutaneous (skin) route is not a potential significant contributor to overall exposure.

8.2 PERSONAL PROTECTION

Respiratory Protection: Use self-contained breathing apparatus in high vapor concentrations.

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Ventilation: General (mechanical) room ventilation is expected to be Satisfactory where this product is stored and handled in closed equipment. Special local ventilation is needed at points where vapors can be expected to escape to the workplace air.

Eye Protection: Monogoggles

Protective Gloves: Butyl

Polyvinyl chloride coated

Other Protective Equipment: Eye bath, safety shower, and chemical apron.

8.3 ENGINEERING CONTROLS

PROCESS HAZARD: Sudden release of hot organic chemical vapor or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into hot equipment under a vacuum, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Further information is available in a technical bulletin entitled "Ignition Hazards of Organic Chemical Vapor."

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Appearance: Transparent colorless to pale amber

Odor: Mild ammoniacal

Flash Point - Closed Cup: 194.4 deg C 382 deg F Pensky-Martens Closed Cup ASTM D 93

Flash Point - Open Cup: 190.5 deg C 375 deg F Cleveland Open Cup ASTM D 92

Flammable Limits In Air:

Lower Not determined.

Upper Not determined.

Autoignition Temperature: Not currently available.

Vapor Pressure: < 0.01 mmHg 20 deg C

Boiling Point (760 mmHg): 310.3 deg C 590.5 deg F Extrapolated with decomposition

Vapor Density (air = 1): 4.9

Specific Gravity (H2O = 1): 1.126 20 deg C/20 deg C

Freezing Point: 15.8 deg C 60.4 deg F

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Melting Point: Not applicable.

Solubility in Water (by weight): 100 % 20 deg C

pH: Not currently available.

Evaporation Rate (Butyl Acetate = 1): < 0.01

Percent Volatiles: 0.25 Wt%

10. STABILITY AND REACTIVITY

10.1 STABILITY/INSTABILITY Stable.

Conditions to Avoid: Temperatures above 250 degrees C. May undergo self-sustaining thermal decomposition.

Incompatible Materials: Strong oxidizing agents. Strong bases. Strong acids. Aldehydes. Ketones. Acrylates. Organic anhydrides. Organic halides.

10.2 HAZARDOUS POLYMERIZATION Will not occur.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Peroral

Rat; female; LD50 = 4.92 (3.58 - 6.78) ml/kg

Major Signs: sluggishness, lacrimation, piloerection, unsteady gait, diarrhea, and red or brown discharge on perinasal and perigenital fur

Gross Pathology: discolored lungs, stomach, intestines. Clear to dark red liquid in stomach and intestine

Peroral

Rat; male; LD50 = 8.57 (5.80 - 12.7) ml/kg

Major Signs: sluggishness, lacrimation, piloerection, unsteady gait, diarrhea, and red or brown discharge on perinasal and perigenital fur

Gross Pathology: discolored lungs, stomach, intestines. Clear to dark red liquid in stomach and intestine

Percutaneous

Rabbit; female = 16 ml/kg; 24 h occluded.

Mortality: 0/5

Major Signs: sluggishness, unsteady gait, emaciation

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Gross Pathology: discolored lungs, thymus, spleen, kidneys; stomach and intestines gas-and/or liquid-filled

Percutaneous

Rabbit; male = 16 ml/kg; 24 h occluded.

Mortality: 0/5

Major Signs: sluggishness, unsteady gait, emaciation

Gross Pathology: discolored lungs, thymus, spleen, kidneys; stomach and intestines gas-and/or liquid-filled

Inhalation

static generation Rat; female; 6 h; 25 deg C.

Mortality: 0/5

Major Signs: None. Gross Pathology: None.

Inhalation

static generation Rat; male; 6 h; 25 deg C.

Mortality: 0/5

Major Signs: None. Gross Pathology: None.

SIGNIFICANT DATA WITH POSSIBLE RELEVANCE TO HUMANS

There are reports that ingestion of diethanolamine (DEA) produced nervous system injury in dogs and rats. Heart and salivary gland lesions have also been observed in mice treated with DEA cutaneously and in drinking water. Rats given high doses of DEA developed anemia and testicular lesions. An increased incidence of some skeletal variations suggestive of a slight developmental delay was seen only in the fetuses of rats given 1500 mg/kg/day cutaneously which also caused significant maternal toxicity. However, no fetal malformations were observed in either rats or rabbits similarly treated. The National Toxicology Program has concluded that there is clear evidence of liver tumor and some evidence of kidney tumor in mice dermally exposed for their lifetime to DEA. The significance of these findings and their relevance to humans are not clear as DEA was not genotoxic (neither mutagenic nor clastogenic), and did not induce tumors in rats or in transgenic mice similarly treated. Additional research to better understand the significance of these observations to humans, if any, is underway.

Recent analyses of Diethanolamine and Triethanolamine for N-nitrosodiethanolamine have not revealed its presence at the detection limit of the test (20ppb). However, amines may react with nitrites or other nitrosating agents to form nitrosamines. Some nitrosamines have been shown

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to be carcinogenic in laboratory animals.

12. ECOLOGICAL INFORMATION 12.1 ENVIRONMENTAL FATE

BOD (% Oxygen consumption)

Day 5	Day 10	Day 15	Day 20	Day 28/30
2%	9%		49%	

12.2 ECOTOXICITY

Toxicity to Micro-organisms

Bacterial/NA; 16 h; IC50

Result value: > 5000 mg/L

Toxicity to Aquatic Invertebrates

Daphnia; 48 h; LC50

Result value: 739 (659 - 828) mg/L

Toxicity to Fish

Fathead Minnow; 96 h; LC50

Result value: 2348 (2064 - 2671) mg/L

12.3 FURTHER INFORMATION

Chemical Oxygen Demand (COD) - measured: 1.65 mg/mg

Chemical Oxygen Demand (COD) - calculated: 1.61 mg/mg

13. DISPOSAL CONSIDERATIONS

13.1 DISPOSAL

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. VENDOR HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/ Information on Ingredients). FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. TRANSPORT INFORMATION 14.1 U.S. D.O.T.

NON-BULK

Proper Shipping Name : NOT REGULATED

BULK

Proper Shipping Name : OTHER REGULATED SUBSTANCES, LIQUID, NOS

Technical Name : CONTAINS DIETHANOLAMINE Hazard Class : 9

ID Number : NA3082

Packing Group : PG III

PRODUCT: TRIETHANOLAMINE 85X

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Reportable Quantity : 770 LB

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION 15.1 FEDERAL/NATIONAL COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (CERCLA SECTION 103)

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Component	CAS #	Amount
N,N-Diethanolamine	111-42-2	<= 15.0000%

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTION 302

This product contains the following substances which are subject to SARA Section 302 reporting requirements and which are listed in 40 CFR 302.4. None.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTION 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act 1986 and which are listed in 40 CFR Part 372.

Component	CAS #	Amount
N,N-Diethanolamine	111-42-2	<= 15.0000%

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 TITLE III (EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986) SECTIONS 311 AND 312

- Delayed (Chronic) Health Hazard : Yes
- Fire Hazard : No
- Immediate (Acute) Health Hazard : Yes
- Reactive Hazard : Yes
- Sudden Release of Pressure Hazard : No

TOXIC SUBSTANCES CONTROL ACT (TSCA)

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All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS)

The components of this product are on the EINECS inventory or are exempt from EINECS inventory requirements.

CEPA - DOMESTIC SUBSTANCES LIST (DSL)

All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

15.2 STATE/LOCAL

PENNSYLVANIA (WORKER AND COMMUNITY RIGHT-TO-KNOW ACT)

The following product components are cited in the Pennsylvania Hazardous Substances List, the Pennsylvania Special Hazardous Substance List, and/or the Pennsylvania Environmental Hazardous Substance list, and are present at levels which require reporting.

Component	CAS #	Amount
Triethanolamine	102-71-6	<= 89.0000%
N,N-Diethanolamine	111-42-2	<= 15.0000%

CALIFORNIA PROPOSITION 65 (SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

CALIFORNIA SCAQMD RULE 443.1 (SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 443.1, LABELING OF MATERIALS CONTAINING ORGANIC SOLVENTS)

VOC: Vapor pressure <0.01 mmHg at 20 deg C 170 g/l VOC
170 g/l of material less water and less exempted solvents.

This section provides selected regulatory information on this product including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

16. OTHER INFORMATION

16.2 HAZARD RATING SYSTEM

NFPA ratings for this product are: H - 2 F - 1 R - 1

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These ratings are part of a specific hazard communication program and should be disregarded where individuals are not trained in the use of this hazard rating system. You should be familiar with the hazard communication programs applicable to your workplace.

16.3 RECOMMENDED USES AND RESTRICTIONS
FOR INDUSTRY USE ONLY

16.4 REVISION

Version: 3.0

Revision: 09/03/2004

16.5 LEGEND

Bacterial/NA Non Acclimated Bacteria

F Fire

H Health

IHG Industrial Hygiene Guideline

N/A Not available

NFPA National Fire Protection Association

O Oxidizer

R Reactivity

TS Trade secret

VOL/VOL Volume/Volume

W Water Reactive

W/W Weight/Weight

