

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Naphthol / Tris Buffer

MSDS NUMBER: 230139

GENERAL USE: Buffer solution

PRODUCT DESCRIPTION: Off-white liquid, odorless, light sensitive

Thermo
ELECTRON CORPORATION

MANUFACTURER'S NAME (Distributor in the Americas)
Thermo Electron Corporation

DATE PREPARED: December 30, 2003

Page 1 of 4

SUPERSEDES: August 1, 2001

ADDRESS (NUMBER, STREET, P.O. BOX)
171 Industry Drive

TELEPHONE NUMBER FOR INFORMATION
(412) 788-1133

(CITY, STATE AND ZIP CODE)
Pittsburgh, PA 15275

COUNTRY
USA

EMERGENCY TELEPHONE NUMBER

CHEM • TEL (800) 255-3924 Outside USA (813) 248-0585

DISTRIBUTOR'S NAME (Outside the Americas)
Thermo Electron Corporation

ADDRESS (NUMBER, STREET, P.O. BOX)
93/96 Chadwick Road, Astmoor

TELEPHONE NUMBER FOR INFORMATION
+44 (0) 1928 562547

(CITY, STATE AND ZIP CODE)
Runcorn, Cheshire WA7 1PR

COUNTRY
United Kingdom

EMERGENCY TELEPHONE NUMBER

CHEM • TEL (813) 248-0585

SECTION 2 - HAZARDOUS INGREDIENTS

| HAZARDOUS COMPONENTS | % (by weight) | CAS # | EINECS # | Hazard Symbol | RISK PHRASES Full Text Section 16 |
|----------------------------------|------------------|-----------|-----------|------------------|--------------------------------------|
| Naphthol AS-MX phosphate | 10 - 30 | 1596-56-1 | 216-480-1 | Xi | R-36/37/38 |
| Tris(hydroxymethyl) aminomethane | 1 - 5 | 77-86-1 | 201-064-4 | Xi | R-36/37/38 |

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Off-white liquid, light sensitive, prolonged contact may cause skin & eye irritation. Ingestion may cause gastric distress. Hazard symbols for this product - Xi, Risk Phrases - R36/37/38

POTENTIAL HEALTH EFFECTS

INHALATION: Inhalation of mists or vapors may cause irritation to upper respiratory tract and mucous membranes.

SKIN: Prolonged contact with the skin will cause irritation, local redness.

EYES: This product is an eye irritant. Contact with the eyes will cause irritation.

INGESTION: May cause gastric distress, vomiting and diarrhea.

CARCINOGENICITY

NTP? No IARC MONOGRAPHS? No OSHA REGULATED? No

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Naphthol / Tris Buffer
December 30, 2003

Page 2 of 4

SECTION 4 - FIRST AID MEASURES

INHALATION: Remove affected person to fresh air; if symptoms 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; seek medical attention; never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

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

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

FIRE FIGHTING PROCEDURES
Keep containers cool with water spray to prevent container rupture due to steam buildup; floor will become slippery if material is released.

UNUSUAL FIRE AND EXPLOSION HAZARDS
None

HAZARDOUS COMBUSTION PRODUCTS
Smoke, fumes, oxides of carbon and nitrogen

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Small spills - wash to sanitary sewer with plenty of water. Large spills - soak up with approved absorbent, shovel product into approved container for disposal. Wash area with plenty of water.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Keep container closed when not in use; protect containers from abuse; protect from extreme temperatures.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

| HAZARDOUS COMPONENTS | NIOSH | | | | ACGIH | | | |
|----------------------------------|-----------------|-----------|----------|------------|-----------------|-----------|----------|------------|
| | TWA ppm | TWA mg/m3 | STEL ppm | STEL mg/m3 | TWA ppm | TWA mg/m3 | STEL ppm | STEL mg/m3 |
| Naphthol AS-MX phosphate | Not established | | | | Not established | | | |
| Tris(hydroxymethyl) aminomethane | Not established | | | | Not established | | | |

PERSONAL PROTECTION:

RESPIRATORY PROTECTION (SPECIFY TYPE): None required; however, if misting occurs, NIOSH approved respirator capable of removing particulate from air must be worn. Refer to 29 CFR 1910.134 or European Standard EN 149 for complete regulations.

PROTECTIVE GLOVES: Neoprene gloves, butyl or nitrile rubber gloves with cuffs.

EYE PROTECTION: Protective eyeglasses or chemical safety goggles. Refer to 29 CFR 1910.133 or European Standard EN166.

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 |
|-----------------------------------|

| | |
|---|-------------|
| PRODUCT NAME: Naphthol / Tris Buffer December 30, 2003 | Page 3 of 4 |
|---|-------------|

| |
|---|
| SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES |
|---|

| | |
|--|---|
| APPEARANCE AND ODOR Off-white liquid, odorless | VAPOR PRESSURE 17 mm Hg @ 20° C |
| pH Not specified | SPECIFIC GRAVITY (WATER = 1) Not specified |
| BOILING POINT / BOILING RANGE > 220° F (> 104° C) | SOLUBILITY IN WATER Complete |
| FLASH POINT Non-flammable | VISCOSITY Not specified |
| FLAMMABLE LIMITS LEL: Not applicable UEL: Not applicable | VAPOR DENSITY (AIR = 1) > 1 |
| AUTOIGNITION TEMPERATURE Not established | EVAPORATION RATE (WATER = 1) < 1 |

| |
|--|
| SECTION 10 - STABILITY AND REACTIVITY |
|--|

| | |
|--|---|
| STABILITY UNSTABLE: STABLE: XXX | CONDITIONS TO AVOID: Extreme temperatures, keep from freezing |
| 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, fumes, and smoke may be produced. | |
| HAZARDOUS POLYMERIZATION MAY OCCUR: WILL NOT OCCUR: XXX | CONDITIONS TO AVOID: None |

| |
|---|
| SECTION 11 - TOXICOLOGICAL INFORMATION |
|---|

| Hazardous Components | CAS # EINECS # | LD50 of Ingredient (Specify Species and Route) | LC50 of Ingredient (Specify Species) |
|----------------------------------|------------------------|---|---|
| Naphthol AS-MX phosphate | 1596-56-1 216-480-1 | Not established | Not established |
| Tris(hydroxymethyl) aminomethane | 77-86-1 201-064-4 | 5900 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: According to the European Waste Catalogue, waste codes are application specific and should be assigned by the user based on the application for which the product is used. Dispose of in accordance with Local, State, and Federal Regulations. Product is classified as non-hazardous, however, non-hazardous materials may become hazardous waste upon contact with other products. 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, EU, 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

PRODUCT NAME: Naphthol / Tris Buffer
December 30, 2003

SECTION 15 - REGULATORY INFORMATION

TSCA (USA - 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 (USA - Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories
Immediate health

313 Reportable Ingredients:
None

CERCLA (USA - 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)

Naphthol AS-MX phosphate (1596-56-1) is not listed on the Canadian DSL or NDSL. All other components of this product identified by CAS number are listed on the DSL or NDSL. 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.

WGK Water Quality Index: nwg

RISK PHRASES:

R36/37/38 Irritating to eyes, respiratory system and skin

SYMBOL(S) REQUIRED FOR LABEL

Irritant



SAFETY PHRASES:

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36 Wear suitable protective clothing.

SECTION 16 - OTHER INFORMATION

Notes & full R-Phrase text

R36/37/38 Irritating to eyes, respiratory system and skin

HMIS HAZARD RATINGS

| | | | |
|-------------------------------|---|------------------------|-------------|
| HEALTH | 1 | 0 = INSIGNIFICANT | 3 = HIGH |
| FLAMMABILITY | 0 | 1 = SLIGHT | 4 = EXTREME |
| REACTIVITY | 0 | 2 = MODERATE | |
| PERSONAL PROTECTIVE EQUIPMENT | B | Safety Glasses, Gloves | |

REVISION SUMMARY:

This MSDS has been revised in the following sections: No revisions available

MSDS Prepared by: Chem-Tel, Inc.
1305 N. Florida Ave.
Tampa, Florida USA 33602 (800) 255-3924 Outside USA (813) 248-0573

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.