

DATE: 08/14/93 ACCT: 888235-01
INDEX: 05912870140 CAT NO: BP152500 PO NBR: N/A

PAGE: 1

TRIS(HYDROXYMETHYL)AMINOMETHANE
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MATERIAL SAFETY DATA SHEET

FISHER SCIENTIFIC
CHEMICAL DIVISION
1 REAGENT LANE
FAIR LAWN NJ 07410
(201) 796-7100

EMERGENCY NUMBER: (201) 796-7100
CHEMTREC ASSISTANCE: (800) 424-9300

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SUBSTANCE IDENTIFICATION

CAS-NUMBER 77-86-1

SUBSTANCE: **TRIS(HYDROXYMETHYL)AMINOMETHANE**

TRADE NAMES/SYNONYMS:

1,3-PROPANEDIOL, 2-AMINO-2-(HYDROXYMETHYL)-; AMINOTRIMETHYLOLMETHANE;
AMINOTRIS(HYDROXYMETHYL)METHANE; TRIMETHYLOLAMINOMETHANE;
TRIS(BUFFERING AGENT); TRIS BUFFER; TRIS(HYDROXYMETHYL)AMINOMETHANE;
TRIS(HYDROXYMETHYL)METHANAMINE; TRIS(HYDROXYMETHYL)METHYLAMINE;
TRIS(METHYLOLAMINO)METHANE; TROMETHAMINE; TROMETHANE; TROMETHANMIN;
TRISAMIN; THAM; 2-AMINO-2-(HYDROXYMETHYL)-1,3-PROPANEDIOL; TRIS; T370; B77;
BP152; C4H11NO3; ACC24440

CHEMICAL FAMILY:
AMINE

HYDROXYL, ALIPHATIC

MOLECULAR FORMULA: (H-O-C-H2)3-C-N-H2

MOLECULAR WEIGHT: 121.14

CERCLA RATINGS (SCALE 0-3): HEALTH=2 FIRE=1 REACTIVITY=0 PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=1 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: TRIS(HYDROXYMETHYL)AMINOMETHANE PERCENT: 100.0
CAS# 77-86-1

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
NO OCCUPATIONAL EXPOSURE LIMITS ESTABLISHED BY OSHA, ACGIH, OR NIOSH.

PHYSICAL DATA

DESCRIPTION: ODORLESS, HYGROSCOPIC, CRYSTALLINE MASS OR WHITE CRYSTALLINE

POWDER. BOILING POINT: 426-428 F (219-220 C) @ 10 MMHG

MELTING POINT: 340-342 F (171-172 C) SPECIFIC GRAVITY: NOT AVAILABLE

PH: 10.4 @ 1.2% SOLUTION SOLUBILITY IN WATER: 55%

SOLVENT SOLUBILITY: MODERATELY SOLUBLE IN METHANOL, ETHANOL, ETHYLENE GLYCOL, DIMETHYLFORMAMIDE; SLIGHTLY SOLUBLE IN ACETONE, ETHER; VERY SLIGHTLY SOLUBLE IN ETHYL ACETATE, CYCLOHEXANE, CHLOROFORM, CARBON TETRACHLORIDE.

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
SLIGHT FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR REGULAR FOAM
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR REGULAR FOAM
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIREFIGHTING:
MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. DO NOT SCATTER
SPILLED MATERIAL WITH HIGH-PRESSURE WATER STREAMS. DIKE FIRE-CONTROL WATER FOR

DATE: 08/14/93 ACCT: 888235-01
INDEX: 05912870140 CAT NO: BP152500 PO NBR: N/A

PAGE: 2

LATER DISPOSAL (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE
PAGE 31).

USE AGENTS SUITABLE FOR TYPE OF SURROUNDING FIRE. AVOID BREATHING HAZARDOUS
VAPORS, KEEP UPWIND.

TOXICITY

TRIS(HYDROXYMETHYL)AMINOMETHANE:
TOXICITY DATA: 5900 MG/KG ORAL-RAT LD50; 1000 MG/KG ORAL-RABBIT LDLO;
1800 MG/KG INTRAVENOUS-RAT LD50; 1210 MG/KG INTRAVENOUS-MOUSE LD50.
CARCINOGEN STATUS: NONE.
LOCAL EFFECTS: IRRITANT- INHALATION, SKIN, EYE.
ACUTE TOXICITY LEVEL: SLIGHTLY TOXIC BY INGESTION.
TARGET EFFECTS: NO DATA AVAILABLE.

HEALTH EFFECTS AND FIRST AID

INHALATION:

TRIS(HYDROXYMETHYL)AMINOMETHANE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION OF THE MUCOUS MEMBRANES WITH TIGHTNESS
AND PAIN IN THE CHEST, COUGHING, AND DIFFICULTY BREATHING.
CHRONIC EXPOSURE- NO DATA AVAILABLE.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING
HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST.
TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:

TRIS(HYDROXYMETHYL)AMINOMETHANE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION WITH REDNESS, PAIN, AND POSSIBLY
SENSITIZATION.
CHRONIC EXPOSURE- MAY CAUSE DERMATITIS DUE TO IRRITATION OR SENSITIZATION.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED
AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO
EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL
ATTENTION IMMEDIATELY.

EYE CONTACT:

TRIS(HYDROXYMETHYL)AMINOMETHANE:
IRRITANT.

ACUTE EXPOSURE MAY CAUSE IRRITATION WITH REDNESS, PAIN, AND POSSIBLY
CORNEAL DAMAGE.
CHRONIC EXPOSURE- PROLONGED OR REPEATED EXPOSURE TO IRRITANTS MAY CAUSE
CONJUNCTIVITIS.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE.
OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL
REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:

TRIS(HYDROXYMETHYL)AMINOMETHANE:
ACUTE EXPOSURE- MAY CAUSE GASTROINTESTINAL IRRITATION AND POSSIBLY BURNS
TO THE MOUTH AND STOMACH. LARGE DOSES TO LABORATORY ANIMALS CAUSED
WEAKNESS, COLLAPSE AND DEATH. THE ESTIMATED FATAL DOSE IS 50 GRAMS.
CHRONIC EXPOSURE- NO DATA AVAILABLE.

FIRST AID- TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION
IMMEDIATELY. IF VOMITING OCCURS, KEEP HEAD LOWER THAN HIPS TO PREVENT
ASPIRATION.

ANTIDOTE:

NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:

STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:

TRIS(HYDROXYMETHYL)AMINOMETHANE:

ACIDS: VIGOROUS REACTION.

ALKALIES (STRONG): INCOMPATIBLE.

ALUMINUM: CORROSIVE.

BRASS: CORROSIVE.

COPPER: CORROSIVE.

OXIDIZERS (STRONG): FIRE AND EXPLOSION HAZARD.

DECOMPOSITION:

THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF CARBON AND
NITROGEN.

POLYMERIZATION:

HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL

DATE: 08/14/93 ACCT: 888235-01
INDEX: 05912870140 CAT NO: BP152500 PO NBR: N/A

PAGE: 3

TEMPERATURES AND PRESSURES.

STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE.

STORAGE

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

STORE IN A COOL, DRY PLACE; KEEP CONTAINER TIGHTLY CLOSED WHEN NOT IN USE.

CONDITIONS TO AVOID

MAY BURN BUT DOES NOT IGNITE READILY. AVOID CONTACT WITH STRONG OXIDIZERS, EXCESSIVE HEAT, SPARKS, OR OPEN FLAME.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
SWEEP UP AND PLACE IN SUITABLE CLEAN, DRY CONTAINERS FOR RECLAMATION OR LATER DISPOSAL. DO NOT FLUSH SPILLED MATERIAL INTO SEWER. KEEP UNNECESSARY PEOPLE AWAY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST VENTILATION. VENTILATION EQUIPMENT MUST BE EXPLOSION PROOF.

RESPIRATOR:
THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION.
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE. MUST BE BASED ON THE SPECIFIC OPERATION, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND MUST BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

ANY DUST AND MIST RESPIRATOR.

ANY AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

ANY POWERED AIR-PURIFYING RESPIRATOR WITH A DUST AND MIST FILTER.

ANY POWERED AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

ANY TYPE 'C' SUPPLIED-AIR RESPIRATOR OPERATED IN THE PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE OR CONTINUOUS-FLOW MODE.

ANY SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

ANY SELF-CONTAINED BREATHING APPARATUS THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

ANY SUPPLIED-AIR RESPIRATOR THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

CLOTHING:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EMERGENCY WASH FACILITIES:
WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - FISHER SCIENTIFIC, INC.

DATE: 08/14/93 ACCT: 888235-01
INDEX: 05912870140 CAT NO: BP152500 PO NBR: N/A

PAGE: 4

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