

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP15020 PO NBR: N/A

PAGE: 1

\*\*N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE\*\*  
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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 110-18-9  
SUBSTANCE: \*\*N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE\*\*

TRADE NAMES/SYNONYMS:  
1,2-BIS-(DIMETHYLAMINO)-ETHANE; 1,2-DI-(DIMETHYLAMINO)ETHANE;  
N,N,N',N'-TETRAMETHYL-1,2-DIAMINOETHANE; PROPAMINE D; TEMED; UN 2372;  
O-4653; BP150; ACC16078

CHEMICAL FAMILY:  
AMINE, ALIPHATIC

MOLECULAR FORMULA: C6-H16-N2

MOLECULAR WEIGHT: 116.21

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

COMPONENTS AND CONTAMINANTS

COMPONENT: N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE PERCENT: 100  
CAS# 110-18-9

OTHER CONTAMINANTS: NONE

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

PHYSICAL DATA

DESCRIPTION: YELLOW LIQUID WITH AN AMINE ODOR BOILING POINT: 250 F (121 C)

MELTING POINT: -67 F (-55 C) SPECIFIC GRAVITY: 0.7765

VAPOR PRESSURE: 3 MMHG @ 20 C EVAPORATION RATE: (ETHER=1) 1

PH: ALKALINE IN SOLUTION SOLUBILITY IN WATER: SOLUBLE VAPOR DENSITY: 4.0

SOLVENT SOLUBILITY: MOST ORGANIC SOLVENTS

FIRE AND EXPLOSION DATA

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

VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL A CONSIDERABLE DISTANCE TO A SOURCE OF IGNITION AND FLASH BACK.

VAPOR-AIR MIXTURES ARE EXPLOSIVE ABOVE FLASH POINT.

FLASH POINT: 63 F (17 C) (CC) UPPER EXPLOSIVE LIMIT: NOT AVAILABLE

LOWER EXPLOSIVE LIMIT: NOT AVAILABLE AUTOIGNITION TEMP.: NOT AVAILABLE

FLAMMABILITY CLASS(OSHA): IB

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).

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP15020 PO NBR: N/A

PAGE: 2

FIREFIGHTING:  
DO NOT TOUCH SPILLED MATERIAL (1990 EMERGENCY RESPONSE GUIDEBOOK,  
DOT P 5800.5, GUIDE PAGE 58).

EXTINGUISH ONLY IF FLOW CAN BE STOPPED; USE FLOODING AMOUNTS OF WATER AS A  
FOG, SOLID STREAMS MAY BE INEFFECTIVE. COOL CONTAINERS WITH FLOODING  
AMOUNTS OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING  
VAPORS, KEEP UPWIND.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49-CFR 172.101:  
FLAMMABLE LIQUID

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49-CFR 172.101 AND  
SUBPART E:  
FLAMMABLE LIQUID

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49-CFR 173.119  
EXCEPTIONS: 49-CFR 173.118

TOXICITY

N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE:  
IRRITATION DATA: 10 MG/24 HOURS OPEN SKIN-RABBIT; 750 UG EYE-RABBIT SEVERE.  
TOXICITY DATA: 5390 MG/KG SKIN-RABBIT LD50; 1580 MG/KG ORAL-RAT LD50.  
CARCINOGEN STATUS: NONE.  
LOCAL EFFECTS: CORROSIVE- EYE; IRRITANT- INHALATION, SKIN.  
ACUTE TOXICITY LEVEL: MODERATELY TOXIC BY INGESTION; SLIGHTLY TOXIC BY  
DERMAL ABSORPTION  
TARGET EFFECTS: NO DATA AVAILABLE.

HEALTH EFFECTS AND FIRST AID

INHALATION:  
N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE:  
IRRITANT.

ACUTE EXPOSURE- VAPORS MAY CAUSE IRRITATION OF THE RESPIRATORY TRACT.  
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:  
N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE:  
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION AND POSSIBLY BURNS. ANIMAL STUDIES  
INDICATE SKIN ABSORPTION MAY OCCUR.  
CHRONIC EXPOSURE- REPEATED AND PROLONGED CONTACT MAY DERMATITIS.

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:  
N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE:  
CORROSIVE.

ACUTE EXPOSURE- MAY CAUSE SEVERE IRRITATION AND POSSIBLY BURNS. INSTILLATION  
INTO THE EYES OF RABBITS ATTACKED THE CORNEA AND CAUSED HAZINESS,  
IRREGULARITIES, AND SLOUGHING OF THE SURFACE ASSOCIATED WITH VIOLENT  
DESICCATION.  
CHRONIC EXPOSURE- EFFECTS DEPEND ON CONCENTRATION AND DURATION OF EXPOSURE.  
REPEATED OR PROLONGED CONTACT MAY RESULT IN CONJUNCTIVITIS OR EFFECTS AS  
IN ACUTE EXPOSURE.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER. OCCASIONALLY  
LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT  
LEAST 15-20 MINUTES). CONTINUE IRRIGATING WITH NORMAL SALINE UNTIL THE PH  
HAS RETURNED TO NORMAL (30-60 MINUTES). COVER WITH STERILE BANDAGES. GET  
MEDICAL ATTENTION IMMEDIATELY.

INGESTION:  
N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE:

ACUTE EXPOSURE- THE LETHAL DOSE REPORTED IN RATS WAS 1580 MG/KG. THE  
SYMPTOMS WERE NOT REPORTED.  
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.

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP15020 PO NBR: N/A

PAGE: 3

REACTIVITY

REACTIVITY:  
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:  
N,N,N',N'-TETRAMETHYLETHYLENEDIAMINE:  
MERCURY: EXPLOSION HAZARD  
OXIDIZING MATERIALS: MAY REACT.

DECOMPOSITION:  
THERMAL DECOMPOSITION MAY RELEASE TOXIC OXIDES OF NITROGEN.

POLYMERIZATION:  
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

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CONDITIONS TO AVOID

AVOID CONTACT WITH HEAT, SPARKS, FLAMES, OR OTHER SOURCES OF IGNITION. VAPORS MAY BE EXPLOSIVE AND POISONOUS; DO NOT ALLOW UNNECESSARY PERSONNEL IN AREA. DO NOT OVERHEAT CONTAINERS; CONTAINERS MAY VIOLENTLY RUPTURE AND TRAVEL A CONSIDERABLE DISTANCE IN HEAT OF FIRE.

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SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:  
SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. NO SMOKING, FLAMES OR FLARES IN HAZARD AREA. KEEP UNNECESSARY PEOPLE AWAY; ISOLATE HAZARD AREA AND DENY ENTRY.

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PROTECTIVE EQUIPMENT

VENTILATION:  
PROVIDE LOCAL EXHAUST OR GENERAL DILUTION 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 CHEMICAL CARTRIDGE RESPIRATOR WITH ORGANIC VAPOR CARTRIDGE(S) AND A FULL FACEPIECE.

ANY GAS MASK WITH ORGANIC VAPOR CANISTER (CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER), WITH A FULL FACEPIECE.

ANY TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE OR WITH A FULL FACEPIECE, HELMET OR HOOD OPERATED IN A CONTINUOUS-FLOW MODE.

ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

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 AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE.

EMERGENCY WASH FACILITIES:

DATE: 08/14/93 ACCT: 888235-01  
INDEX: 05912870140 CAT NO: BP15020 PO NBR: N/A

PAGE: 4

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.

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