

***TRICHLOROACETIC ACID, SOLID**

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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

CAS-NUMBER 76-03-9

SUBSTANCE: ***TRICHLOROACETIC ACID, SOLID**

TRADE NAMES/SYNONYMS:
ACETO-CAUSTIN; TRICHLOROETHANOIC ACID; AMCHEM; TCA; GRASS KILLER;
STCC 4931470; UN 1839; A-322; A-323;

CHEMICAL FAMILY:
CARBOXYLIC ACID, ALIPHATIC

HALOGEN COMPOUND, ALIPHATIC

MOLECULAR FORMULA: C2-H-CL3-O2 MOL WT: 163.40

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

COMPONENTS AND CONTAMINANTS

COMPONENT: TRICHLOROACETIC ACID PERCENT: >99.0

OTHER CONTAMINANTS: <1% ACETIC ACID

EXPOSURE LIMITS:
TRICHLOROACETIC ACID:
1 PPM (7 MG/M3) OSHA TWA
1 PPM (7 MG/M3) ACGIH TWA

PHYSICAL DATA

DESCRIPTION: DELIQUESCENT COLORLESS CRYSTALS WITH A SHARP-PUNGENT ODOR.

BOILING POINT: 388 F (198 C) MELTING POINT: 136 F (58 C)

SPECIFIC GRAVITY: 1.6 VAPOR PRESSURE: 1 MMHG @ 56.2 C

SOLUBILITY IN WATER: SOLUBLE VAPOR DENSITY: 5.6

SOLVENT SOLUBILITY: ALCOHOL AND ETHER.

FIRE AND EXPLOSION DATA

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

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, HALON, WATER SPRAY OR ALCOHOL FOAM
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR STANDARD FOAM
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FIREFIGHTING:
MOVE CONTAINERS FROM FIRE AREA IF POSSIBLE. COOL CONTAINERS EXPOSED TO FLAMES WITH WATER FROM SIDE UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM STORAGE TANK ENDS (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4, GUIDE PAGE 59).

USE AGENTS SUITABLE FOR TYPE OF FIRE. USE WATER IN FLOODING AMOUNTS AS FOG. COOL CONTAINERS WITH FLOODING QUANTITIES OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. AVOID BREATHING CORROSIVE VAPORS, KEEP UPWIND.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49CFR172.101:
CORROSIVE MATERIAL

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49CFR172.101 AND 172.402:
CORROSIVE

TOXICITY

TRICHLOROACETIC ACID:
210 UG SKIN-RABBIT MILD IRRITATION; 3500 UG/5 SECONDS EYE-RABBIT SEVERE IRRITATION; 500 MG/KG INTRAPERITONEAL-MOUSE LDLO; 270 MG/KG SUBCUTANEOUS-MOUSE LD50; MUTAGENIC DATA (RTEC); CARCINOGEN STATUS: NONE. TRICHLOROACETIC ACID IS A SEVERE EYE, MUCOUS MEMBRANE, AND SKIN IRRITANT.

HEALTH EFFECTS AND FIRST AID

INHALATION:
TRICHLOROACETIC ACID:
CORROSIVE.

ACUTE EXPOSURE- LOW CONCENTRATIONS MAY CAUSE SEVERE MUCOUS MEMBRANE IRRITATION, COUGHING, CHOKING, DYSPNEA, HEADACHE, DIZZINESS AND WEAKNESS. DELAYED SYMPTOMS MAY INCLUDE PULMONARY EDEMA, CHEST TIGHTNESS, FROTHY SPUTUM, CYANOSIS, RALES, AND HYPOTENSION. EXPOSURE TO 50 PPM IS INTOLERABLE TO SOME PERSONS AND MAY RESULT IN SEVERE IRRITATION AND CORROSION.

CHRONIC EXPOSURE- PROLONGED EXPOSURE TO ACID FUMES MAY CAUSE DENTAL EROSION, NECROSIS OF THE JAW, NASAL ULCERATION, BRONCHIAL IRRITATION, COUGHING, BRONCHIAL PNEUMONIA, AND GASTROINTESTINAL DISTURBANCES.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
TRICHLOROACETIC ACID:
CORROSIVE.

ACUTE EXPOSURE- CONTACT MAY CAUSE SEVERE IRRITATION AND PAIN, WITH BURNS, VESICULATION, AND BROWNISH OR YELLOWISH STAINS.

CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT MAY CAUSE DERMATITIS. REPEATED APPLICATION A SOLUTION TO A RAT'S TAIL PRODUCED SUCH NECROSIS THAT PART OF THE TAIL DROPPED OFF.

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 (AT LEAST 15-20 MINUTES). IN CASE OF CHEMICAL BURNS, COVER AREA WITH STERILE, DRY DRESSING. BANDAGE SECURELY, BUT NOT TOO TIGHTLY. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
TRICHLOROACETIC ACID:
CORROSIVE.

ACUTE EXPOSURE- LOW VAPOR CONCENTRATIONS OR DIRECT CONTACT MAY CAUSE CORNEAL AND CONJUNCTIVAL EDEMA, IRITIS, CORNEAL EROSION AND OPACITY, PAIN, LACRIMATION, PHOTOPHOBIA, AND BLURRED VISION.

CHRONIC EXPOSURE- PROLONGED OR REPEATED EXPOSURE TO VAPOR MAY CAUSE CONJUNCTIVITIS.

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:
TRICHLOROACETIC ACID:
CORROSIVE.

ACUTE EXPOSURE- MAY CAUSE SEVERE BURNING PAIN IN THE MOUTH, PHARYNX, AND ABDOMEN FOLLOWED BY VOMITING AND DIARRHEA OF DARK PRECIPITATED BLOOD. GASTROINTESTINAL DAMAGE AND ACIDOSIS. THE BLOOD PRESSURE MAY FALL SHARPLY. BROWNISH OR YELLOWISH STAINS MAY BE FOUND AROUND OR IN THE MOUTH. ASPHYXIA MAY OCCUR FROM EDEMA OF THE GLOTTIS. AFTER THE INITIAL RECOVERY, ONSET OF FEVER MAY INDICATE MEDIASTITIS OR PERITONITIS FROM PERFORATION OF THE ESOPHAGUS OR THE STOMACH. HOWEVER, THE PATIENT MAY HAVE A RIGID ABDOMEN WITHOUT PERFORATION. IF THE PATIENT RECOVERS FROM THE IMMEDIATE DAMAGE, SCAR FORMATION MAY CAUSE STRICTURE OF THE PYLORUS AND ESOPHAGUS.

CHRONIC EXPOSURE- NO DATA AVAILABLE.

FIRST AID- DO NOT USE GASTRIC LAVAGE OR EMESIS. DILUTE THE ACID IMMEDIATELY BY DRINKING LARGE QUANTITIES OF WATER OR MILK. IF VOMITING PERSISTS, ADMINISTER FLUIDS REPEATEDLY. INGESTED ACID MUST BE DILUTED APPROXIMATELY 100 FOLD TO RENDER IT HARMLESS TO TISSUES. MAINTAIN AIRWAY AND TREAT SHOCK. (DREISBACH, HANDBOOK OF POISONING, 12TH ED.). GET MEDICAL ATTENTION IMMEDIATELY. IF VOMITING OCCURS, KEEP HEAD BELOW HIPS TO HELP PREVENT ASPIRATION.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

****TRICHLOROACETIC ACID, SOLID****
INCOMPATIBILITIES:
TRICHLOROACETIC ACID:
METALS; CORROSIVE.

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DECOMPOSITION:
THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE HIGHLY TOXIC FUMES OF PHOSGENE,
TOXIC AND CORROSIVE FUMES OF CHLORIDES, AND OXIDES OF CARBON.

DECOMPOSES UPON HEATING, PARTICULARLY UNDER THE INFLUENCE OF WATER AND STRONG
BASES.

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

CONDITIONS TO AVOID

MAY BURN BUT DOES NOT IGNITE READILY. MAY IGNITE COMBUSTIBLES (WOOD, PAPER,
OIL, ETC.).

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
DO NOT TOUCH SPILLED MATERIAL. 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 SPILL FOR LATER DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE
HAZARD AREA AND DENY ENTRY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST VENTILATION AND/OR GENERAL DILUTION VENTILATION TO MEET
PUBLISHED EXPOSURE LIMITS.

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

CHEMICAL CARTRIDGE RESPIRATOR WITH FULL FACEPIECE AND ORGANIC VAPOR
CARTRIDGE(S) IN COMBINATION WITH A DUST AND MIST FILTER.

CHEMICAL CARTRIDGE RESPIRATOR WITH FULL FACEPIECE AND ORGANIC VAPOR
CARTRIDGE(S) IN COMBINATION WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

GAS MASK WITH ORGANIC VAPOR CANISTER (CHIN-STYLE OR FRONT- OR BACK-MOUNTED
CANISTER) WITH A FULL FACEPIECE AND A HIGH-EFFICIENCY PARTICULATE FILTER.

POWERED AIR-PURIFYING RESPIRATOR WITH TIGHT-FITTING FACEPIECE AND ORGANIC
VAPOR CARTRIDGE(S) IN COMBINATION WITH A HIGH-EFFICIENCY PARTICULATE
FILTER.

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 CONTINUOUS-FLOW MODE.

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:

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

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN 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. CONTACT LENSES SHOULD NOT
BE WORN.

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.

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