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ETHYL ACETOACETATE
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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

SUBSTANCE: **ETHYL ACETOACETATE**
CAS-NUMBER 141-97-9

TRADE NAMES/SYNONYMS:
DIACETIC ETHER; ACETOACETIC ESTER; ETHYL ACETYL ACETATE;
ACTIVE ACETYL ACETATE; EAA; ETHYL ACETYL ACETONATE; ETHYL 3-OXOBUTANOATE;
ETHYL 3-OXOBUTYRATE; E-146; C6H10O3; ACC08760

CHEMICAL FAMILY:
ESTER, CARBOXYLIC, ALIPHATIC

MOLECULAR FORMULA: C6-H10-O3

MOLECULAR WEIGHT: 130.1

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

COMPONENTS AND CONTAMINANTS

COMPONENT: ETHYL ACETOACETATE
CAS# 141-97-9
PERCENT: 100

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

PHYSICAL DATA

DESCRIPTION: COLORLESS LIQUID WITH A PLEASANT, FRUITY ODOR.
BOILING POINT: 357 F (181 C) MELTING POINT: -45 F (-43 C)
SPECIFIC GRAVITY: 1.0250 VAPOR PRESSURE: 0.8 MMHG @ 20 C
SOLUBILITY IN WATER: SOLUBLE
SOLVENT SOLUBILITY: ORGANIC SOLVENTS, ALCOHOL, BENZENE, ETHER

FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
MODERATE 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: 135 F (57 C) (CC) UPPER EXPLOSIVE LIMIT: 9.5% @ 350 F

LOWER EXPLOSIVE LIMIT: 1.4% @ 200 F AUTOIGNITION TEMP.: 563 F (295 C)

FLAMMABILITY CLASS(OSHA): II

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).

ALCOHOL FOAM
(NFPA 325M, FIRE HAZARD PROPERTIES OF FLAMMABLE LIQUIDS, GASES, AND VOLATILE SOLIDS, 1984).

Chem.

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FIREFIGHTING:

MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. APPLY COOLING WATER TO SIDES OF CONTAINERS THAT ARE EXPOSED TO FLAMES UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM ENDS OF TANKS. FOR MASSIVE FIRE IN CARGO AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES; IF THIS IS IMPOSSIBLE, WITHDRAW FROM AREA AND LET FIRE BURN. WITHDRAW IMMEDIATELY IN CASE OF RISING SOUND FROM VENTING SAFETY DEVICE OR ANY DISCOLORATION OF TANK DUE TO FIRE. ISOLATE FOR 1/2 MILE IN ALL DIRECTIONS IF TANK, RAIL CAR OR TANK TRUCK IS INVOLVED IN FIRE (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 27).

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:
COMBUSTIBLE LIQUID

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49 CFR 172.101 AND SUBPART E:
NONE

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: NONE
EXCEPTIONS: 49 CFR 173.118A

TOXICITY

ETHYL ACETOACETATE:
510 MG OPEN SKIN-RABBIT MILD IRRITATION; 23 MG EYE-RABBIT IRRITATION;
3980 MG/KG ORAL-RAT LD50; 5105 MG/KG ORAL-MOUSE LD50; CARCINOGEN STATUS:
NONE.

ETHYL ACETOACETATE IS AN EYE, MUCOUS MEMBRANE AND SKIN IRRITANT.

HEALTH EFFECTS AND FIRST AID

INHALATION:
ETHYL ACETOACETATE:
IRRITANT.

ACUTE EXPOSURE- INHALATION MAY CAUSE IRRITATION WITH SORE THROAT AND COUGHING. HIGH CONCENTRATIONS MAY CAUSE DIZZINESS AND DROWSINESS. SEVERE CASES MAY CAUSE UNCONSCIOUSNESS.

CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE MUCOUS MEMBRANE IRRITATION.

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:
ETHYL ACETOACETATE:
IRRITANT.

ACUTE EXPOSURE- CONTACT WITH THE SKIN MAY CAUSE IRRITATION WITH REDNESS. CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE MAY CAUSE 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:
ETHYL ACETOACETATE:
IRRITANT.

ACUTE EXPOSURE- CONTACT WITH THE EYES MAY CAUSE IRRITATION WITH REDNESS. CHRONIC EXPOSURE- REPEATED OR PROLONGED EXPOSURE 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:
ETHYL ACETOACETATE:

ACUTE EXPOSURE- INGESTION MAY CAUSE SORE THROAT AND ABDOMINAL PAIN, DIZZINESS AND DROWSINESS. A MODERATE DOSE WAS LETHAL TO RATS TESTED. CHRONIC EXPOSURE- NO DATA AVAILABLE.

FIRST AID- IF THE PERSON IS CONSCIOUS AND NOT CONVULSING, INDUCE EMESIS BY GIVING SYRUP OF IPECAC FOLLOWED BY WATER. (IF VOMITING OCCURS KEEP THE HEAD BELOW THE HIPS TO PREVENT ASPIRATION). REPEAT IN 20 MINUTES IF NOT EFFECTIVE INITIALLY. GIVE ACTIVATED CHARCOAL. IN PATIENTS WITH DEPRESSED RESPIRATION OR IF EMESIS IS NOT PRODUCED, PERFORM GASTRIC LAVAGE CAUTIOUSLY (DREISBACH, HANDBOOK OF POISONING, 12TH ED.). TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GASTRIC LAVAGE SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

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ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
ETHYL ACETOACETATE:
OXIDIZERS: VIOLENT REACTION.
ZINC + TRIBROMONEPENTYL ALCOHOL: VIOLENT DECOMPOSITION.

DECOMPOSITION:
THERMAL DECOMPOSITION MAY RELEASE TOXIC AND/OR HAZARDOUS GASES.

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

CONDITIONS TO AVOID

AVOID CONTACT WITH HEAT, SPARKS, FLAMES, OR OTHER SOURCES OF IGNITION. VAPORS MAY BE EXPLOSIVE. AVOID OVERHEATING OF CONTAINERS; CONTAINERS MAY VIOLENTLY RUPTURE IN HEAT OF FIRE. AVOID CONTAMINATION OF WATER SOURCES.

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 RESTRICT ENTRY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST VENTILATION SYSTEM.

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 AN ORGANIC VAPOR CARTRIDGE(S) WITH 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 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 WITH FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

ANY 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:

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

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

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