MATERIAL SAFETY DATA SHEET

IDENTIFICATION

PRODUCT #: M18-8
CAS #: 108-31-6
MF: C4H2O3

SYNONYMS
ANHYDRID KYSELINY MALEINOVE (CZECH) * CIS-BUTENEDIOIC ANHYDRIDE * 2,5-PURANDIONE * MALEIC ACID ANHYDRIDE * MALEIC ANHYDRIDE (ACGIH DOT OSHA) * MALEINH ANHYDRID (CZECH) * TOXILIC ANHYDRIDE * RQRA WASTE NUMBER U147 * UN 2215 (DOT) *

TOXICITY HAZARDS

RTECS NO: ON3675500
MALEIC ANHYDRIDE

IRRITATION DATA
EYE-ROT 1% SEV

TOXICITY DATA

ORL-RAT LD50: 400 MG/KG
IPR-RAT LD50: 927 MG/KG
ORL-MUS LD50: 465 MG/KG
ORL-RAT LD50: 875 MG/KG
SKN-RBT LD50: 2620 MG/KG
ORL-GPG LD50: 390 MG/KG

REVIEWS, STANDARDS, AND REGULATIONS

ACGIH TLV-TWA 0.25 PPM 851NAB 5,353,86
MSHA STANDARD-AIR-TWA 0.25 PPM (1 MG/M3) DTLVS 3,148,71
OSHA PEL: 28TH TWA 0.25 PPM (1 MG/M3) FEREC 54,2923,89
OSHA PEL FINAL: 8TH TWA 0.25 PPM (1 MG/M3) FEREC 54,2923,89
NOHS 1974: HZD 436601; NES 515; TNE 5109; NES 51; TNE 71386
NOES 1983: HZD 436601 NES 45; TNE 3244; NES 571; TNE 51069; TFE 9968
EPA TSCA CHEMICAL INVENTORY, JUNE 1990
EPA TSCA 8(A) PRELIMINARY ASSESSMENT INFORMATION, FINAL RULE FEREC 47,289,289
EPA TSCA SECTION 8(E) STATUS REPORT 8EHQ-0970-011; 8EHQ-0278-0063
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, SEPTEMBER 1990
OSHA ANALYTICAL METHOD #25

TARGET ORGAN DATA
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)
TUMORIGENIC (TUMORS AT SITE OF APPLICATION)

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

--------- HEALTH HAZARO DATA ---------

ACUTE EFFECTS
HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.

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PD#: LETTER 1/31/91

PRODUCT #: MA8-8
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MF: C4H2O3
NAME: MALEIC ANHYDRIDE, BRIOQUETTES, 99%

----------------- HEALTH HAZARD DATA -----------------

MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT, EYES AND SKIN.
INHALATION MAY BE FATAL AS A RESULT OF SPASMS, INFLAMMATION AND EDEMA OF THE LARYNX AND BRONCHI, CHEMICAL PNEUMONITIS AND PULMONARY EDEMA.
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND VOMITING.
CAUSES SNEEZING. DO NOT INHALE.

CHRONIC EFFECTS
ASTHMA
DERMATITIS
PULMONARY EDEMA. EFFECTS MAY BE DELAYED.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

FIRST AID
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

------------------ PHYSICAL DATA ------------------

BOILING PT: 200 C
MELTING PT: 54 C TO 56 C
VAPOR DENSITY: 3.4
VAPOR PRESSURE: 16 MM 2.20 C
1 MM 44 C

APPEARANCE AND ODOR
WHITE CRYSTALLINE BRIQUETTES

------------------------- FIRE AND EXPLOSION HAZARD DATA -------------------------

FLASHPOINT: 218 F
AUTOIGNITION TEMPERATURE: 870 F
LOWER EXPLOSION LEVEL: 1.4%
UPPER EXPLOSION LEVEL: 7.1%

EXTINGUISHING MEDIA
WATER SPRAY.
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------ FIRE AND EXPLOSION HAZARD DATA ------
CARBON DIOXIDE.  
DO NOT USE DRY CHEMICAL POWDER EXTINGUISHER ON THIS MATERIAL.  
SPECIAL FIREFIGHTING PROCEDURES  
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.  
UNUSUAL FIRE AND EXPLOSION HAZARDS  
THIS MATERIAL, LIKE MOST MATERIALS IN POWDER FORM, IS CAPABLE OF CREATING A DUST EXPLOSION.  

------ REACTIVITY DATA ------
INCOMPATIBILITIES  
STRONG OXIDIZING AGENTS  
STRONG ACIDS  
STRONG BASES  
STRONG REDUCING AGENTS  
ALKALI METALS  
AMINES  
MAY DECOMPOSE ON EXPOSURE TO MOIST AIR OR WATER.  
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS  
TOXIC FUMES OF:  
CARBON MONOXIDE, CARBON DIOXIDE  

---------- SPILL OR LEAK PROCEDURES ----------
STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED  
EVACUATE AREA.  
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.  
SWEEP UP; PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.  
AVOID RAISING DUST.  
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.  
WASTE DISPOSAL METHOD  
DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.  
OBSERVE ALL FEDERAL, STATE, AND LOCAL LAWS.  
--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---  
WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.  

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--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---

SAFETY SHOWER AND EYE BATH.
USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE DUST.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
CORROSIVE.
TOXIC.
STERNUTATOR.
HARMFUL SOLID.
KEEP TIGHTLY CLOSED.
MOISTURE SENSITIVE.
STORE IN A COOL, DRY PLACE.

REGULATORY INFORMATION
THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

--------- ADDITIONAL PRECAUTIONS AND COMMENTS ---------

ADDITIONAL INFORMATION
CAUTION: MALEIC ANHYDRIDE DECOMPOSES (DECARBOXYLATION AND POLYMERIZATION) IN THE PRESENCE OF THE ALKALI METALS OR AMINES AT TEMPERATURES ABOVE 150°C. THE CONCENTRATION OF THESE IMPURITIES NECESSARY TO TRIGGER THE DECOMPOSITION IS AS LOW AS 200 PPM. THE EXOTHERMIC REACTION WILL TAKE PLACE RAPIDLY AND THE GAS WHICH IS EVOLVED CAN CAUSE EQUIPMENT TO RUPTURE.

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