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chemists helping chemists in research & industry

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18600 HAGGERTY ROAD
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DATE: 07/27/93
CUST#: 938609
PO#: P0074850

MATERIAL SAFETY DATA SHEET

IDENTIFICATION

PRODUCT #: 18591-4
CAS #: 98-01-1 NAME: 2-FURALDEHYDE, 99%
MF: C5H4O2

SYNONYMS
ARTIFICIAL ANT OIL * ARTIFICIAL OIL OF ANTS * 2-FORMYLFURAN * FURAL * FURALE * 2-FURANALDEHYDE * 2-FURANCARBONAL * 2-FURANCARBOXALDEHYDE * 2-FURANKARBALDEHYD (CZECH) * FURFURAL * 2-FURFURAL * FURFURAL (ACGIH, DOT,OSHA) * FURFURALDEHYDE * FURFURALE (ITALIAN) * FURFURALU (POLISH) * FURFUROL * FURFUROLE * 2-FURIL-METANALE (ITALIAN) * FUROLE * ALPHA-FUROLE * 2-FURYLALDEHYDE * 2-FURYL-METHANAL * NCI-C56177 * PYROMUCIC ALDEHYDE * RCRA WASTE NUMBER U125 * UN 1199 (DOT) *

TOXICITY HAZARDS

RTECS #: LT7000000
2-FURALDEHYDE

IRRITATION DATA

SKN-RBT 20 MG/24H MOD	85JCAE -,788,86
SKN-RBT 500 MG/24H MLD	FCTXAV 16,759,78
EYE-RBT 100 MG/24H MOD	85JCAE -,788,86

TOXICITY DATA

ORL-RAT LD50:65 MG/KG	BCTKAG 13,371,80
IHL-RAT LC50:175 PPM/6H	AIHAAP 50,A359,89
IPR-RAT LD50:20 MG/KG	FCTXAV 16,759,78
SCU-RAT LD50:148 MG/KG	34ZIAG -,279,69
ORL-MUS LD50:400 MG/KG	BIJOAK 34,1196,40
IPR-MUS LD50:102 MG/KG	FCTXAV 16,759,78
SCU-MUS LD50:119 MG/KG	FCTXAV 16,759,78
IVN-MUS LD50:152 MG/KG	FCTXAV 16,759,78
ORL-DOG LD50:950 MG/KG	34ZIAG -,279,69
IHL-DOG LC50:370 PPM/6H	34ZIAG -,279,69
SCU-DOG LD50:214 MG/KG	FCTXAV 16,759,78
IVN-DOG LD50:250 MG/KG	FCTXAV 16,759,78
IMS-RBT LD50:78 MG/KG	FCTXAV 16,759,78
ORL-GPG LD50:541 MG/KG	HYSAAV 32(5),158,67

REVIEWS, STANDARDS, AND REGULATIONS
ACGIH TLV-TWA 2 PPM (SKIN) 85INA8 5,280,86
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION FEREAC 54,7740,89
MSHA STANDARD-AIR:TWA 5 PPM (20 MG/M3) (SKIN) DTLVS* 3,120,71
OSHA PEL:8H TWA 5 PPM (20 MG/M3)(SKIN) FEREAC 54,2923,89
OSHA PEL FINAL:8H TWA 2 PPM (8 MG/M3)(SKIN) FEREAC 54,2923,89

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TOXICITY HAZARDS

OEL-AUSTRALIA:TWA 2 PPM (8 MG/M3);SKIN JANUARY 1993
OEL-BELGIUM:TWA 2 PPM (7.9 MG/M3);SKIN JANUARY 1993
OEL-CZECHOSLOVAKIA:TWA 10 MG/M3;STEL 20 MG/M3 JANUARY 1993
OEL-DENMARK:TWA 5 PPM (20 MG/M3);SKIN JANUARY 1993
OEL-FINLAND:TWA 5 PPM (20 MG/M3);STEL 10 PPM (40 MG/M3);SKIN JANUARY 1993
OEL-FRANCE:STEL 2 PPM (8 MG/M3) JANUARY 1993
OEL-GERMANY:TWA 5 PPM (20 MG/M3);SKIN JANUARY 1993
OEL-JAPAN:TWA 2.5 PPM (9.8 MG/M3);SKIN JANUARY 1993
OEL-THE NETHERLANDS:TWA 2 PPM (8 MG/M3) JANUARY 1993
OEL-THE PHILIPPINES:TWA 5 PPM (20 MG/M3);SKIN JANUARY 1993
OEL-POLAND:TWA 10 MG/M3 JANUARY 1993
OEL-RUSSIA:TWA 2.5 PPM;STEL 10 MG/M3;SKIN JANUARY 1993
OEL-SWEDEN:TWA 5 PPM (20 MG/M3);STEL 10 PPM (40 MG/M3);SKIN JANUARY 1993
OEL-SWITZERLAND:TWA 2 PPM (8 MG/M3);SKIN JANUARY 1993
OEL-TURKEY:TWA 5 PPM (20 MG/M3);SKIN JANUARY 1993
OEL-UNITED KINGDOM:TWA 2 PPM (8 MG/M3);STEL 10 PPM (40 MG/M3);SKIN JANUARY 1993
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA, NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NOHS 1974: HZD 34120; NIS 11; TNF 333; NOS 30; TNE 5904
NOES 1983: HZD 34120; NIS 79; TNF 6447; NOS 66; TNE 135914; TFE 6706
EPA GENETOX PROGRAM 1988, POSITIVE: HISTIDINE REVERSION-AMES TEST
EPA TSCA CHEMICAL INVENTORY, JUNE 1990
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 1993
NIOSH ANALYTICAL METHODS: SEE FURFURAL, 2529
NTP CARCINOGENESIS STUDIES (GAVAGE);CLEAR EVIDENCE:MOUSE NTPTR* NTP-TR-382,90
NTP CARCINOGENESIS STUDIES (GAVAGE);SOME EVIDENCE:RAT NTPTR* NTP-TR-382,90
OSHA ANALYTICAL METHOD #ID-72

TARGET ORGAN DATA
PERIPHERAL NERVE AND SENSATION (FLACCID PARALYSIS WITHOUT ANESTHESIA)
SENSE ORGANS AND SPECIAL SENSES (MYDRIASIS)
BEHAVIORAL (CONVULSIONS OR EFFECT ON SEIZURE THRESHOLD)
BEHAVIORAL (ATAXIA)
LUNGS, THORAX OR RESPIRATION (RESPIRATORY STIMULATION)

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TOXICITY HAZARDS

LUNGS, THORAX OR RESPIRATION (OTHER CHANGES)
GASTROINTESTINAL (NAUSEA OR VOMITING)
LIVER (HEPATITIS: HEPATOCELLULAR NECROSIS, ZONAL)
KIDNEY, URETER, BLADDER (CHANGES IN TUBULES)
BLOOD (HEMORRHAGE)
NUTRITIONAL AND GROSS METABOLIC (WEIGHT LOSS OR DECREASED WEIGHT GAIN)
TUMORIGENIC (ACTIVE AS ANTI-CANCER AGENT)
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

HEALTH HAZARD DATA

ACUTE EFFECTS
HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.
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 SPASM, 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.
MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTIONS.
MAY CAUSE NERVOUS SYSTEM DISTURBANCES.

CHRONIC EFFECTS
CARCINOGEN.
MAY ALTER GENETIC MATERIAL.
TARGET ORGAN(S):
NERVES
LIVER

FIRST AID
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS 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.

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HEALTH HAZARD DATA

DISCARD CONTAMINATED CLOTHING AND SHOES.

ADDITIONAL INFORMATION
CAUSES CENTRAL NERVOUS SYSTEM (CNS) DEPRESSION, LOSS OF TASTE, NUMBNESS OF THE TONGUE, HEADACHES AND STUPOR.

PHYSICAL DATA

BOILING POINT: 162 C
MELTING POINT: -36 C
SPECIFIC GRAVITY: 1.160
VAPOR DENSITY: 3.31
VAPOR PRESSURE: 1.7 MM @ 20 C
13.5 MM @ 55 C

APPEARANCE AND ODOR
GOLD LIQUID

FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT 140 F
AUTOIGNITION TEMPERATURE: 599 F
LOWER EXPLOSION LEVEL: 2.1%
UPPER EXPLOSION LEVEL: 19.3%

EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
COMBUSTIBLE LIQUID.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

REACTIVITY DATA

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REACTIVITY DATA

INCOMPATIBILITIES
STRONG OXIDIZING AGENTS
STRONG BASES
LIGHT SENSITIVE
AIR SENSITIVE

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
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
COVER WITH DRY LIME OR SODA ASH, PICK UP, KEEP IN A CLOSED CONTAINER AND HOLD FOR WASTE DISPOSAL.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
WASTE DISPOSAL METHOD
THIS COMBUSTIBLE MATERIAL MAY BE BURNED IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

CHEMICAL SAFETY GOGGLES.
RUBBER GLOVES.
NIOSH/MSHA-APPROVED RESPIRATOR.
SAFETY SHOWER AND EYE BATH.
USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE VAPOR.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
WASH THOROUGHLY AFTER HANDLING.
CORROSIVE.
TOXIC.
HARMFUL LIQUID.
POSSIBLE SENSITIZER.
CARCINOGEN.
MUTAGEN.
KEEP TIGHTLY CLOSED.

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

AIR AND LIGHT SENSITIVE
KEEP AWAY FROM HEAT AND OPEN FLAME.
STORE UNDER NITROGEN.
STORE IN A COOL DRY PLACE.

LABEL PRECAUTIONARY STATEMENTS

TOXIC
MAY CAUSE CANCER.
MAY CAUSE HERITABLE GENETIC DAMAGE.
TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
CAUSES BURNS.
COMBUSTIBLE.
POSSIBLE SENSITIZER.
TARGET ORGAN(S):
NERVES
LIVER
IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE (SHOW THE LABEL WHERE POSSIBLE).
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
DO NOT BREATHE VAPOR.
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

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