

Valid 11/1999 - 01/2000

FOAM AND WATER SPRAY ARE EFFECTIVE BUT MAY CAUSE FROTHING.  
SPECIAL FIREFIGHTING PROCEDURES  
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO  
PREVENT CONTACT WITH SKIN AND EYES.  
UNUSUAL FIRE AND EXPLOSIONS HAZARDS  
FLAMMABLE SOLID.  
THIS MATERIAL, LIKE MOST MATERIALS IN POWDER FORM, IS CAPABLE OF  
CREATING A DUST EXPLOSION.

SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES- - - - -  
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.

SECTION 7. - - - - - HANDLING AND STORAGE- - - - -  
REFER TO SECTION 8.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -  
STORE IN A COOL DRY PLACE.  
KEEP TIGHTLY CLOSED.  
KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.  
WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT  
GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.  
USE ONLY IN A CHEMICAL FUME HOOD.  
SAFETY SHOWER AND EYE BATH.  
DO NOT BREATHE DUST.  
AVOID CONTACT WITH FUMES.  
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.  
AVOID PROLONGED OR REPEATED EXPOSURE.  
WASH THOROUGHLY AFTER HANDLING.  
DISCARD CONTAMINATED CLOTHING AND SHOES.  
TOXIC.  
IRRITANT.  
SENSITIZER.  
HYGROSCOPIC

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

PHYSICAL PROPERTIES

BOILING POINT: 218 C  
MELTING POINT: 77 C  
FLASHPOINT 176 F  
80 C

EXPLOSION LIMITS IN AIR:

UPPER 5.9 %  
LOWER 0.9 %

VAPOR PRESSURE: 1 MMHG  
VAPOR DENSITY: 4.4 G/L

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -

INCOMPATIBILITIES

OXIDIZING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

CARBON MONOXIDE, CARBON DIOXIDE

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -

ACUTE EFFECTS

MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER  
RESPIRATORY TRACT.  
HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.  
CAUSES EYE AND SKIN IRRITATION.  
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING,  
WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND  
VOMITING.  
ABSORPTION INTO THE BODY LEADS TO THE FORMATION OF METHEMOGLOBIN  
WHICH IN SUFFICIENT CONCENTRATION CAUSES CYANOSIS. ONSET MAY BE  
DELAYED 2 TO 4 HOURS OR LONGER.

NAPHTHALENE IS RETINOTOXIC AND SYSTEMIC ABSORPTION OF ITS VAPORS ABOVE 15PPM, MAY RESULT IN CATARACTS, OPTICAL NEURITIS, INJURIES TO THE CORNEA AND MARKED EYE IRRITATION. INGESTION OF LARGE QUANTITIES HAVE BEEN REPORTED TO CAUSE SEVERE HEMOLYTIC ANEMIA AND HEMOGLOBINURIA. MAY CAUSE ALLERGIC SKIN REACTION.

CHRONIC EFFECTS

CARCINOGEN.

TARGET ORGAN(S):

- EYES
- BLOOD
- KIDNEYS
- LUNGS

RTECS #: QJ0525000

NAPHTHALENE

IRRITATION DATA

SKN-RBT 495 MG OPEN MLD UCDS\*\* 1/11/1968  
EYE-RBT 100 MG MLD BIOFX\* 16-4/1970

TOXICITY DATA

ORL-CHD LDLO:100 MG/KG 28ZRAQ -,228,1960  
UNR-HMN LDLO:29 MG/KG YKYUA6 31,1499,1980  
UNR-MAN LDLO:74 MG/KG 85DCAI 2,73,1970  
ORL-RAT LD50:490 MG/KG 85GMAT -,89,1982  
IHL-RAT LC50:>340 MG/M3/1H BIOFX\* 16-4/1970  
SKN-RAT LD50:>2500 MG/KG TXAPA9 14,515,1969  
ORL-MUS LD50:533 MG/KG FAATDF 4,406,1984  
IPR-MUS LD50:150 MG/KG NTIS\*\* AD691-490  
SCU-MUS LD50:969 MG/KG TOIZAG 20,772,1973  
IVN-MUS LD50:100 MG/KG CSLNX\* NX#00203  
SKN-RBT LD50:>20 GM/KG NTIS\*\* AD-A062-138  
ORL-GPG LD50:1200 MG/KG GISAAA 47(11),78,1982

TARGET ORGAN DATA

SENSE ORGANS AND SPECIAL SENSES (PTOSIS)  
BEHAVIORAL (SOMNOLENCE)  
BEHAVIORAL (TREMOR)  
BEHAVIORAL (CHANGE IN MOTOR ACTIVITY)  
BEHAVIORAL (ATAXIA)  
LUNGS, THORAX OR RESPIRATION (RESPIRATORY DEPRESSION)  
LUNGS, THORAX OR RESPIRATION (TUMORS)  
TUMORIGENIC (NEOPLASTIC BY RTECS CRITERIA)  
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. - - - - - ECOLOGICAL INFORMATION - - - - -  
DATA NOT YET AVAILABLE.

SECTION 13. - - - - - DISPOSAL CONSIDERATIONS - - - - -  
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 ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - TRANSPORT INFORMATION - - - - -  
CONTACT SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - REGULATORY INFORMATION - - - - -  
EUROPEAN INFORMATION

- HIGHLY FLAMMABLE
- TOXIC

S 16

KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.

S 45

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

S 26

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

S 36/37/39

WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.

#### REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

ACGIH TLV-NOT CLASSIFIABLE AS A HUMAN CARCINOGEN DTLVS\* TLV/BEI,1997

ACGIH TLV-STEL 79 MG/M3 (15 PPM) DTLVS\* TLV/BEI,1997

ACGIH TLV-TWA 52 MG/M3 (10 PPM) DTLVS\* TLV/BEI,1997

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION  
FEREAC 54,7740,1989

MSHA STANDARD-AIR:TWA 10 PPM (50 MG/M3)

DTLVS\* 3,177,1971

OSHA PEL (GEN INDU):8H TWA 10 PPM (50 MG/M3)

CFRGBR 29,1910.1000,1994

OSHA PEL (CONSTRUC):8H TWA 10 PPM (50 MG/M3)

CFRGBR 29,1926.55,1994

OSHA PEL (SHIPYARD):8H TWA 10 PPM (50 MG/M3)

CFRGBR 29,1915.1000,1993

OSHA PEL (FED CONT):8H TWA 10 PPM (50 MG/M3)

CFRGBR 41,50-204.50,1994

OEL-ARAB REPUBLIC OF EGYPT:TWA 10 PPM (50 MG/M3) JAN 1993

OEL-AUSTRIA: MAK 10 PPM (50 MG/M3), JAN1999

OEL-AUSTRALIA:TWA 10 PPM (50 MG/M3);STEL 15 PPM (75 MG/M3) JAN 1993

OEL-BELGIUM:TWA 10 PPM (52 MG/M3);STEL 15 PPM (79 MG/M3) JAN 1993

OEL-DENMARK: TWA 10 PPM (50 MG/M3), JAN1999

OEL-FINLAND:TWA 10 PPM (50 MG/M3);STEL 20 PPM (100 MG/M3) JAN 1993

OEL-GERMANY:TWA 10 PPM (50 MG/M3) JAN 1993

OEL-HUNGARY:TWA 40 MG/M3;STEL 80 MG/M3;SKIN JAN 1993

OEL-THE NETHERLANDS:TWA 10 PPM (50 MG/M3) JAN 1993

OEL-POLAND: MAC(TWA) 20 MG/M3, MAC(STEL) 75 MG/M3, JAN1999

OEL-THE PHILIPPINES:TWA 10 PPM (50 MG/M3) JAN 1993

OEL-RUSSIA:STEL 20 MG/M3 JAN 1993

OEL-SWITZERLAND:TWA 10 PPM (50 MG/M3) JAN 1993

OEL-UNITED KINGDOM:TWA 10 PPM (50 MG/M3);STEL 15 PPM (75 MG/M3) JAN 1993

OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV

NIOSH REL TO NAPHTHALENE-AIR:10H TWA 10 PPM;STEL 15 PPM

NIOSH\* DHHS #92-100,1992

NOHS 1974: HZD 49600; NIS 71; TNF 4341; NOS 68; TNE 44297

NOES 1983: HZD 49600; NIS 83; TNF 7209; NOS 87; TNE 112696; TFE 5220

EPA GENETOX PROGRAM 1988, NEGATIVE: CELL TRANSFORM.-MOUSE EMBRYO

EPA GENETOX PROGRAM 1988, NEGATIVE: CELL TRANSFORM.-RLV F344 RAT EMBRYO

EPA GENETOX PROGRAM 1988, NEGATIVE: HISTIDINE REVERSION-AMES TEST

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES

ON EPA IRIS DATABASE

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JUNE 1999

NIOSH ANALYTICAL METHOD, 1994: HYDROCARBONS, AROMATIC, 1501

NIOSH ANALYTICAL METHOD, 1994: POLYNUCLEAR AROMATIC HYDROCARBONS BY  
HPLC, 5506; BY GC, 5515

NTP CARCINOGENESIS STUDIES (INHALATION);SOME EVIDENCE:MOUSE

NTPTR\* NTP-TR-410,1992

NTP CARCINOGENESIS STUDIES; ON TEST (TWO YEAR STUDIES), MAY 1999

OSHA ANALYTICAL METHOD #35

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

SECTION 16. - - - - - OTHER INFORMATION- - - - -

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA, ALDRICH, FLUKA SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.