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M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1. - - - - - CHEMICAL IDENTIFICATION- - - - -

CATALOG #: H9379
 NAME: N-HEXANE

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 110-54-3
 MF: C6H14
 EC NO: 203-777-6

SYNONYMS

ESANI (ITALIAN) * GETTYSOLVE-B * HEKSAN (POLISH) * N-HEXANE (ACGIH:
 OSHA) * HEXANEN (DUTCH) * HEXYL HYDRIDE * NCI-C60571 *

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

FLAMMABLE (USA)
 HIGHLY FLAMMABLE (EU)
 HARMFUL
 IRRITATING TO SKIN.
 HARMFUL: DANGER OF SERIOUS DAMAGE TO HEALTH BY PROLONGED
 EXPOSURE THROUGH INHALATION.
 TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS
 IN THE AQUATIC ENVIRONMENT.
 POSSIBLE RISK OF IMPAIRED FERTILITY.
 HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED.
 VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.
 TARGET ORGAN(S):
 NERVES
 KIDNEYS
 KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.
 IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
 IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
 AVOID EXPOSURE - OBTAIN SPECIAL INSTRUCTIONS BEFORE USE.
 WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE
 PROTECTION.

SECTION 4. - - - - - FIRST-AID MEASURES- - - - -

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
 CALL A PHYSICIAN.
 IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL
 RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
 IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS
 AMOUNTS OF WATER.
 IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF
 WATER FOR AT LEAST 15 MINUTES.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

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.
 USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND
 FLASH BACK.
 CONTAINER EXPLOSION MAY OCCUR UNDER FIRE CONDITIONS.
 FLAMMABLE LIQUID.

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES- - - - -
 WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY
 RUBBER GLOVES.
 COVER WITH DRY-LIME, SAND, OR SODA ASH. PLACE IN COVERED CONTAINERS
 USING NON-SPARKING TOOLS AND TRANSPORT OUTDOORS.
 VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
 EVACUATE AREA.
 SHUT OFF ALL SOURCES OF IGNITION.
 USE NONSPARKING TOOLS.

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

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -
 SAFETY SHOWER AND EYE BATH.
 USE NONSPARKING TOOLS.
 MECHANICAL EXHAUST REQUIRED.
 REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY.
 WASH THOROUGHLY AFTER HANDLING.
 DO NOT BREATHE VAPOR.
 DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
 AVOID PROLONGED OR REPEATED EXPOSURE.
 NIOSH/MSHA-APPROVED RESPIRATOR.
 COMPATIBLE CHEMICAL-RESISTANT GLOVES.
 CHEMICAL SAFETY GOGGLES.
 KEEP TIGHTLY CLOSED.
 KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
 STORE IN A COOL DRY PLACE.

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

LIQUID.

PHYSICAL PROPERTIES

BOILING POINT: 69 C

MELTING POINT: -95 C

FLASHPOINT -9.40F
 -23C

EXPLOSION LIMITS IN AIR:

UPPER 7.7 %
 LOWER 1.2 %

VAPOR PRESSURE: 132 MMHG @ 20 C

SOLUBILITY:

WATER -Z1077

SPECIFIC GRAVITY: 0.659

EVAPORATION RATE: 15.8

VAPOR DENSITY: 3 G/L

PERCENT VOLATILE: 100 %

ODOR THRESHOLD: 64 - 244 PPM

VISCOSITY 32 PAS

PH: 7

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

STABLE.

INCOMPATIBILITIES

OXIDIZING AGENTS

INCOMPATIBLE WITH: CHLORINE, FLUORINE, MAGNESIUM PERCHLORATE.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

CARBON MONOXIDE, CARBON DIOXIDE

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -
 ACUTE EFFECTS

PROLONGED OR REPEATED CONTACT WITH SKIN CAN CAUSE DEFATTING AND
 DERMATITIS. CONTACT WITH EYES CAN CAUSE REDNESS, TEARING, AND BLURRED
 VISION. INGESTION MAY CAUSE GASTROINTESTINAL IRRITATION.
 CAN CAUSE CNS DEPRESSION.

EXPOSURE CAN CAUSE:

LUNG IRRITATION, CHEST PAIN AND EDEMA WHICH MAY BE FATAL.

HEADACHE, DIZZINESS, DROWSINESS, INCOORDINATION, SLOWED REACTION TIME,

SLURRED SPEECH, GIDDINESS AND UNCONSCIOUSNESS.
 TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND
 TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.
 CAUSES SKIN IRRITATION.
 MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
 MAY CAUSE EYE IRRITATION.
 MAY BE HARMFUL IF INHALED.
 VAPOR OR MIST IS IRRITATING TO THE MUCOUS MEMBRANES AND UPPER
 RESPIRATORY TRACT.
 MAY BE HARMFUL IF SWALLOWED.

CHRONIC EFFECTS

OVEREXPOSURE MAY CAUSE REPRODUCTIVE DISORDER(S) BASED ON TESTS WITH
 LABORATORY ANIMALS.

TARGET ORGAN(S):

PERIPHERAL NERVOUS SYSTEM

KIDNEYS

TESTES

RTECS #: MN9275000

HEXANE

IRRITATION DATA

EYE-RBT 10 MG MLD

TXAPA9 55,501,1980

TOXICITY DATA

ORL-RAT LD50:25 GM/KG

INHEAO 32,145,1994

IHL-RAT LC50:48000 PPM/4H

ARPTDI 22,145,1982

TARGET ORGAN DATA

PERIPHERAL NERVE AND SENSATION (STRUCTURAL CHANGE IN NERVE OR SHEATH)

BEHAVIORAL (ALTERED SLEEP TIME)

TUMORIGENIC EFFECTS (TESTICULAR TUMORS)

EFFECTS ON NEWBORN (GROWTH STATISTICS)

TUMORIGENIC (CARCINOGENIC 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 - - - - -
 CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF
 THIS MATERIAL.

BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND
 SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY
 FLAMMABLE.

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

EC INDEX NO: 601-037-00-0

HIGHLY FLAMMABLE

HARMFUL

R 11

HIGHLY FLAMMABLE.

R 38

IRRITATING TO SKIN.

R 48/20

HARMFUL: DANGER OF SERIOUS DAMAGE TO HEALTH BY PROLONGED
 EXPOSURE THROUGH INHALATION.

R 51/53

TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS
 IN THE AQUATIC ENVIRONMENT.

R 62

POSSIBLE RISK OF IMPAIRED FERTILITY.

R 65

HARMFUL: MAY CAUSE LUNG DAMAGE IF SWALLOWED.

R 67

VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.

S 9

KEEP CONTAINER IN A WELL-VENTILATED PLACE.

S 16
KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.

S 29

DO NOT EMPTY INTO DRAINS.

S 33

TAKE PRECAUTIONARY MEASURES AGAINST STATIC DISCHARGES.

S 36/37

WEAR SUITABLE PROTECTIVE CLOTHING AND GLOVES.

S 61

AVOID RELEASE TO THE ENVIRONMENT. REFER TO SPECIAL INSTRUCTIONS/
SAFETY DATA SHEETS.

S 62

IF SWALLOWED, DO NOT INDUCE VOMITING: SEEK MEDICAL ADVICE
IMMEDIATELY AND SHOW THIS CONTAINER OR LABEL.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK

ACGIH TLV-TWA 50 PPM (SKIN)

DTLVS* TLV/BEI,1999

MSHA STANDARD-AIR:TWA 500 PPM (1800 MG/M3)

DTLVS* 3,126,1971

OSHA PEL (GEN INDU):8H TWA 500 PPM (1800 MG/M3)

CFRGBR 29,1910.1000,1994

OSHA PEL (CONSTRUC):8H TWA 500 PPM (1800 MG/M3)

CFRGBR 29,1926.55,1994

OSHA PEL (SHIPYARD):8H TWA 500 PPM (1800 MG/M3)

CFRGBR 29,1915.1000,1993

OSHA PEL (FED CONT):8H TWA 500 PPM (1800 MG/M3)

CFRGBR 41,50-204.50,1994

OEL-AUSTRALIA: TWA 50 PPM (180 MG/M3), JAN1993

OEL-AUSTRIA: MAK 50 PPM (180 MG/M3), JAN1999

OEL-BELGIUM: TWA 50 PPM (176 MG/M3), JAN1993

OEL-DENMARK: TWA 25 PPM (90 MG/M3), JAN1999

OEL-FINLAND: TWA 50 PPM (180 MG/M3), STEL 150 PPM (530 MG/M3), JAN1999

OEL-FRANCE: VME 50 PPM (170 MG/M3), JAN1999

OEL-GERMANY: MAK 50 PPM (180 MG/M3), JAN1999

OEL-HUNGARY: TWA 100 MG/M3, STEL 200 MG/M3, SKIN, JAN1993

OEL-JAPAN: OEL 40 PPM (140 MG/M3), SKIN, JAN1999

OEL-THE NETHERLANDS: MAC-TGG 25 PPM (90 MG/M3), JAN1999

OEL-NORWAY: TWA 25 PPM (90 MG/M3), JAN1999

OEL-THE PHILIPPINES: TWA 500 PPM (1800 MG/M3), JAN1993

OEL-POLAND: MAC(TWA) 100 MG/M3, MAC(STEL) 400 MG/ME, JAN1999

OEL-RUSSIA: TWA 40 PPM, STEL 300 MG/M3, JAN1993

OEL-SWEDEN: NGV 25 PPM (90 MG/M3), KTV 50 PPM (180 MG/M3), JAN1999

OEL-SWITZERLAND: MAK-W 50 PPM (180 MG/M3), KZG-W 100 PPM (360 MG/M3),

JAN1999

OEL-TURKEY: TWA 500 PPM (1800 MG/M3), JAN1993

OEL-UNITED KINGDOM: TWA 20 PPM (72 MG/M3), SEP2000

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

OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV

NIOSH REL TO HEXANE-AIR:10H TWA 50 PPM

NIOSH* DHHS #92-100,1992

NOHS 1974: HZD 36955; NIS 281; TNF 72257; NOS 168; TNE 763261

NOES 1983: HZD 36955; NIS 221; TNF 40256; NOS 161; TNE 643101; TFE

138726

EPA TSCA SECTION 8(B) CHEMICAL INVENTORY

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

EPA TSCA SECTION 8(E) RISK NOTIFICATION, 8EHQ-1292-8628;8EHQ-0893-8628

ON EPA IRIS DATABASE

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JANUARY 2001

NIOSH ANALYTICAL METHOD, 1994: HYDROCARBONS, BP 36-126 DEGREE C, 1500

NIOSH ANALYTICAL METHOD, 1996: VOLATILE ORGANIC COMPOUND, 2549

NTP TOXICITY STUDIES, RPT# TOX-02, OCTOBER 2000

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

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

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