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Material Safety Data Sheet

Transportation Emergency: 1-800-451-8346

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

CATALOG #: 3132-3-85
NAME: N,N-DIETHYL-1,1,2,3,3,3-HEXAFLUOROPROPYLAMINE IN DIGLYME
SYNONYMS: ISHIKAWA'S REAGENT IN DIGLYME

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

N,N-DIETHYL-1,1,2,3,3,3-HEXAFLUOROPROPYLAMINE - 30%
CAS #: 309-88-6
MF: C₇H₁₁F₆N = 223.13
DIGLYME - 70%
CAS #: 111-96-6
MF: C₆H₁₄O₃ = 134.18

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

LABEL PRECAUTIONARY STATEMENTS

N,N-DIETHYL-1,1,2,3,3,3-HEXAFLUOROPROPYLAMINE
COMBUSTIBLE (USA) FLAMMABLE (EU).

CORROSIVE.

HMIS RATING

HEALTH: 3

FLAMMABILITY: 2

REACTIVITY: 1

DIGLYME - 70%

TOXIC.

MAY IMPAIR FERTILITY. MAY CAUSE HARM TO THE UNBORN CHILD.

MAY FORM EXPLOSIVE PEROXIDES.

TARGET ORGAN(S): FEMALE REPRODUCTIVE SYSTEM. MALE REPRODUCTIVE SYSTEM. COMBUSTIBLE.

HMIS RATING

HEALTH: 0*

FLAMMABILITY: 2

REACTIVITY: 3

*ADDITIONAL CHRONIC HAZARDS PRESENT.

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

ORAL EXPOSURE

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN. DO NOT INDUCE VOMITING.

INHALATION EXPOSURE

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

DERMAL EXPOSURE

IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES.

CALL A PHYSICIAN.

EYE EXPOSURE

IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

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

FLAMMABLE HAZARDS

PEROXIDE FORMER: YES

FLASH POINT

N,N-DIETHYL-1,1,2,3,3,3-HEXAFLUOROPROPYLAMINE

104 °F / 40 °C METHOD: CLOSED CUP

DIGLYME

135 °F / 57 °C METHOD: CLOSED CUP

MIXTURE

NOT DETERMINED

EXTINGUISHING MEDIA

SUITABLE: CARBON DIOXIDE, DRY CHEMICAL POWDER, OR APPROPRIATE FOAM.

FIREFIGHTING

PROTECTIVE EQUIPMENT: WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

SPECIFIC HAZARD(S): COMBUSTIBLE LIQUID. EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

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

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

EVACUATE AREA.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS, AND HEAVY RUBBER GLOVES.

METHODS FOR CLEANING UP

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.

SECTION 7. ----- HANDLING AND STORAGE -----

HANDLING

USER EXPOSURE: DO NOT BREATHE VAPOR. DO NOT GET IN EYES, ON SKIN, ON CLOTHING. AVOID PROLONGED OR REPEATED EXPOSURE.

STORAGE

SUITABLE: STORE UNDER INERT GAS. KEEP TIGHTLY CLOSED. KEEP AWAY FROM HEAT AND OPEN FLAME. STORE IN A COOL DRY PLACE.

SPECIAL REQUIREMENTS

HANDLE AND STORE UNDER INERT GAS. MOISTURE SENSITIVE.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION -----

ENGINEERING CONTROLS

SAFETY SHOWER AND EYE BATH. USE ONLY IN A CHEMICAL FUME HOOD.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY: USE RESPIRATORS AND COMPONENTS TESTED AND APPROVED UNDER APPROPRIATE GOVERNMENT STANDARDS SUCH AS NIOSH (US) OR CEN (EU). WHERE RISK ASSESSMENT SHOWS AIR-PURIFYING RESPIRATORS ARE APPROPRIATE USE A FULL-FACE RESPIRATOR WITH MULTI-PURPOSE COMBINATION (US) OR TYPE AXBEK (EN 14387) RESPIRATOR CARTRIDGES AS A BACKUP TO ENGINEERING CONTROLS. IF THE RESPIRATOR IS THE SOLE MEANS OF PROTECTION, USE A FULL-FACE SUPPLIED AIR RESPIRATOR.

HAND: COMPATIBLE CHEMICAL-RESISTANT GLOVES.

EYE: CHEMICAL SAFETY GOGGLES.

OTHER: FACESHIELD (8-INCH MINIMUM).

GENERAL HYGIENE MEASURES

WASH CONTAMINATED CLOTHING BEFORE REUSE. DISCARD CONTAMINATED SHOES. WASH THOROUGHLY AFTER HANDLING.

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

APPEARANCE AND ODOR

YELLOW LIQUID

PHYSICAL PROPERTIES

N,N-DIETHYL-1,1,2,3,3,3-HEXAFLUOROPROPYLAMINE

BOILING POINT: 56.0 - 57.0 °C @ 760 mmHg
DENSITY: 1.23 g/cm³ @ 25 °C
FLASH POINT: 104 °F / 40 °C METHOD: CLOSED CUP
REFRACTIVE INDEX: 1.346

DIGLYME

BOILING POINT: 162 °C 760 mmHg
MELTING POINT: - 64.0 °C
VAPOR PRESSURE: 3 mmHg 20 °C
VAPOR DENSITY: 4.6 g/l
DENSITY: 0.943 g/cm³
FLASH POINT: 134.6 °F 57 °C METHOD: CLOSED CUP
EXPLOSION LIMITS LOWER: 1.5 %
UPPER: 17.4 %
AUTOIGNITION TEMP: 188 °C
REFRACTIVE INDEX: 1.408

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

STABILITY

STABLE: UNSTABLE

CONDITIONS TO AVOID: MOISTURE.

MATERIALS TO AVOID: STRONG OXIDIZING AGENTS, STRONG ACIDS, STRONG BASES

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE, CARBON DIOXIDE,
NITROGEN OXIDES, HYDROGEN FLUORIDE.

HAZARDOUS POLYMERIZATION

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

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

ROUTE OF EXPOSURE

SKIN CONTACT: CAUSES BURNS AND IRRITATION

SKIN ABSORPTION: MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

EYE CONTACT: CAUSES BURNS AND IRRITATION

INHALATION: MAY BE HARMFUL IF INHALED. MATERIAL IS EXTREMELY
DESTRUCTIVE TO THE TISSUE OF THE MUCOUS MEMBRANES AND UPPER
RESPIRATORY TRACT.

INGESTION: MAY BE HARMFUL IF SWALLOWED.

TARGET ORGAN(S) OR SYSTEM(S)

MALE REPRODUCTIVE SYSTEM. FEMALE REPRODUCTIVE SYSTEM.

SIGNS AND SYMPTOMS OF EXPOSURE

MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS
MEMBRANES AND UPPER RESPIRATORY TRACT, EYES, AND SKIN.

INHALATION MAY RESULT IN 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.

SECTION 12. ----- ECOLOGICAL INFORMATION -----

DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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

DOT

PROPER SHIPPING NAME: ETHERS, N.O.S.
UN#: 3265
CLASS: 3
PACKING GROUP: PACKING GROUP III
HAZARD LABEL: FLAMMABLE LIQUID
PIH: NOT PIH

IATA

PROPER SHIPPING NAME: ETHERS, N.O.S.
IATA UN NUMBER: 3265
HAZARD CLASS: 3
PACKING GROUP: III

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

EU ADDITIONAL CLASSIFICATION

SYMBOL OF DANGER: C, T
INDICATION OF DANGER: CORROSIVE, TOXIC
R: 10-34

RISK STATEMENTS: FLAMMABLE. CAUSES BURNS.

R: 60-61-10-19

RISK STATEMENTS: MAY IMPAIR FERTILITY. MAY CAUSE HARM TO THE
UNBORN CHILD. FLAMMABLE. MAY FORM EXPLOSIVE PEROXIDES.

S: 26-16-36/37/39-45/53-45

SAFETY STATEMENTS: IN CASE OF CONTACT WITH EYES, RINSE
IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. KEEP
AWAY FROM SOURCES OF IGNITION - NO SMOKING. WEAR SUITABLE
PROTECTIVE CLOTHING, GLOVES, AND EYE/FACE PROTECTION. RESTRICTED TO
PROFESSIONAL USERS. ATTENTION - AVOID EXPOSURE - OBTAIN SPECIAL
INSTRUCTIONS BEFORE USE. IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK
MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).

US CLASSIFICATION AND LABEL TEXT

INDICATION OF DANGER: COMBUSTIBLE, TOXIC, CORROSIVE.

RISK STATEMENTS: CAUSES BURNS. MAY IMPAIR FERTILITY. MAY CAUSE HARM TO THE
UNBORN CHILD. MAY FORM EXPLOSIVE PEROXIDES.

SAFETY STATEMENTS: KEEP AWAY FROM SOURCES OF IGNITION - NO
SMOKING. IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH
PLENTY OF WATER AND SEEK MEDICAL ADVICE. WEAR SUITABLE
PROTECTIVE CLOTHING, GLOVES, AND EYE/FACE PROTECTION. IN CASE OF
ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY
(SHOW THE LABEL WHERE POSSIBLE).

UNITED STATES REGULATORY INFORMATION

SARA LISTED: YES (AS DIGLYME)

DEMINIMIS: 1 %

NOTES: THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING
REQUIREMENTS - GLYCOL ETHERS.

TSCA INVENTORY ITEM: YES

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. SYNQUEST LABS, INC. SHALL
NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING
OR FROM CONTACT WITH THE ABOVE PRODUCT.