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Material Safety Data Sheet

Transportation Emergency: 1-800-451-8346

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

CATALOG #: 1300-7-E1
NAME: (E)-2-CHLORO-1,1,1,4,4,4-HEXAFLUORO-2-BUTENE
SYNONYM: cis-2-CHLORO-1,1,1,4,4,4-HEXAFLUORO-2-BUTENE *
(2E)-2-CHLORO-1,1,1,4,4,4-HEXAFLUOROBUT-2-ENE

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

CAS #: 7736-43-8
MF: C₄ClF₆ = 198.49

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

LABEL PRECAUTIONARY STATEMENTS
HIGHLY TOXIC (USA) VERY TOXIC (EU).
VERY TOXIC BY INHALATION
FLAMMABLE (USA) HIGHLY FLAMMABLE (EU).
SEE SECTION 11 FOR ADDITIONAL INFORMATION.

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

ORAL EXPOSURE

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN IMMEDIATELY.

INHALATION EXPOSURE

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

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 IMMEDIATELY.

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 IMMEDIATELY.

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

FLASHPOINT

0 °C / 32 °F

SUITABLE EXTINGUISHING MEDIA

USE WATER SPRAY, ALCOHOL-RESISTANT FOAM, DRY CHEMICAL OR CARBON DIOXIDE.

SPECIFIC HAZARDS DURING FIRE FIGHTING

EXTREMELY FLAMMABLE. SOME RISK MAY BE EXPECTED OF CORROSIVE AND TOXIC DECOMPOSITION PRODUCTS. COOL CLOSED CONTAINERS EXPOSED TO FIRE WITH WATER SPRAY. HEATING WILL CAUSE PRESSURE RISE WITH RISK OF BURSTING AND SUBSEQUENT EXPLOSION.

HAZARDOUS DECOMPOSITION PRODUCTS

CARBON MONOXIDE, HYDROGEN FLUORIDE, HYDROGEN CHLORIDE, CARBONYL HALIDES.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE SUIT. EVACUATE AREA. FIGHT FIRE REMOTELY DUE TO THE RISK OF EXPLOSION.

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

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

EVACUATE AREA. KEEP PEOPLE AWAY FROM AND UPWIND OF SPILL/LEAK.

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 EXPLOSION-PROOF ELECTRICAL EQUIPMENT THEN TRANSPORT OUTDOORS. VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

ADDITIONAL ADVICE

INFORM THE RESPONSIBLE AUTHORITIES IN CASE OF GAS LEAKAGE, OR OF ENTRY INTO WATERWAYS, SOIL OR DRAINS. PAY ATTENTION TO THE SPREADING OF GASES ESPECIALLY AT GROUND LEVEL (HEAVIER THAN AIR) AND TO THE DIRECTION OF THE WIND.

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. EXHAUST VENTILATION AT THE OBJECT IS NECESSARY. USE EXPLOSION-PROOF EQUIPMENT. PRESSURIZED CONTAINER: PROTECT FROM SUNLIGHT AND DO NOT EXPOSE TO TEMPERATURES EXCEEDING 50 °C. DO NOT PIERCE OR BURN, EVEN AFTER USE. USE ONLY IN EXPLOSION-PROOF AREAS. KEEP PRODUCT AND EMPTY CONTAINER AWAY FROM HEAT AND SOURCES OF IGNITION. USE ONLY EXPLOSION-PROOF EQUIPMENT. FIRE OR INTENSE HEAT MAY CAUSE VIOLENT RUPTURE OF PACKAGES.

STORAGE

KEEP CONTAINERS TIGHTLY CLOSED IN A COOL, WELL-VENTILATED PLACE. CONTAINERS SHOULD BE PROTECTED AGAINST FALLING DOWN. PROTECT FROM WARMTH. DO NOT STORE AT TEMPERATURE EXCEEDING 50 °C KEEP AWAY FROM DIRECT SUNLIGHT.

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

ENGINEERING CONTROLS

SAFETY SHOWER AND EYE BATH. USE ONLY IN A HIGHLY EFFECTIVE 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 ABEK (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 THOROUGHLY AFTER HANDLING. WASH CONTAMINATED CLOTHING BEFORE REUSE. DISCARD CONTAMINATED SHOES. DO NOT SMOKE. WHEN USING DO NOT EAT OR DRINK.

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

APPEARANCE AND ODOR

COLORLESS LIQUID

PHYSICAL PROPERTIES

BOILING POINT:	41-42 °C @ 760 mmHg
VAPOR DENSITY:	6.82 (CALC.; AIR = 1)
DENSITY:	1.491 g/cm ³ @ 20 °C
REFRACTIVE INDEX:	1.3078 @ 20°C

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

STABILITY

STABLE: STABLE.

CONDITIONS TO AVOID: LIGHT.

MATERIALS TO AVOID: STRONG OXIDIZING AGENTS, ALKALI METALS. LIGHT METALS. FINELY DIVIDED ALUMINUM, ZINC AND/OR MAGNESIUM

HAZARDOUS DECOMPOSITION PRODUCTS

CARBON MONOXIDE, CARBON DIOXIDE, CARBONYL HALIDES, HYDROGEN FLUORIDE.

HAZARDOUS POLYMERIZATION

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

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

ROUTE OF EXPOSURE

SKIN CONTACT: MAY CAUSE IRRITATION

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

EYE CONTACT: POSSIBLE LACHRYMATOR.

INHALATION: MAY BE FATAL IF INHALED.

INGESTION: MAY BE HARMFUL IF SWALLOWED.

SIGNS AND SYMPTOMS OF EXPOSURE

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA, AND VOMITING. 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.

TOXICITY DATA

INHALATION

3 PPM FOR 6 HOURS

LD50

FERSTANDIG, L. L.; CHEMICAL & ENGINEERING NEWS 1966, V44(49), P6, 8 CAPLUS

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: TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.
UN#: 3383
CLASS: 6.1
HAZARD LABEL: TOXIC BY INHALATION LIQUID, FLAMMABLE

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

EU ADDITIONAL CLASSIFICATION
SYMBOL OF DANGER: T+
INDICATION OF DANGER: VERY TOXIC.
R: 26
RISK STATEMENTS: VERY TOXIC BY INHALATION.
S: 26-28-36/37/39-45
SAFETY STATEMENTS: IN CASE OF CONTACT WITH EYES, RINSE
IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. AFTER
CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF SOAP-SUDS.
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).
US CLASSIFICATION AND LABEL TEXT
INDICATION OF DANGER: HIGHLY TOXIC (USA) VERY TOXIC (EU).
RISK STATEMENTS: VERY TOXIC BY INHALATION.
SAFETY STATEMENTS: IN CASE OF CONTACT WITH EYES, RINSE
IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE. AFTER
CONTACT WITH SKIN, WASH IMMEDIATELY WITH PLENTY OF SOAP-SUDS.
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
TSCA LISTED: NO

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

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO
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NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING
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