

MATERIAL SAFETY DATA SHEET

134a (1,1,1,2 Tetrafluoroethane)

REVISION DATE: Mar-2009

EMERGENCY TELEPHONE NUMBERS: (815) 424-2000 CHANNAHON PLANT
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PRODUCT NAME: **134a (1,1,1,2 Tetrafluoroethane)**

SECTION I PRODUCT IDENTIFICATION

CAS REGISTRY # : 811-97-2
CHEMICAL FAMILY : HYDROFLUOROCARBON
CHEMICAL NAME: 1,1,1,2-TETRAFLUOROETHANE (134a)
CHEMICAL FORMULA: CF₃-CH₂F

SECTION II HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	TLV (PPM)
1,1,1,2 TETRAFLUOROETHANE	100	1000

**** PHYSICAL HAZARD DUE TO FLAMMABLE NATURE. FLAMMABLE WHEN COMBINED WITH AIR. ****

SECTION III PHYSICAL DATA

BOILING RANGE: -15.5 F **SPECIFIC GRAVITY (H₂O = 1.00) :** 1.24
VAPOR PRESSURE @ 70 DEG F: 70 PSIG **PERCENT VOLATILE BY VOLUME :** 100%
VAPOR DENSITY (AIR = 1.00): 3.5 **SOLUBILITY IN WATER @ 70 °F:** 0.95%

EVAPORATION RATE: > 1 (ETHYL ETHER = 1.0)
APPEARANCE & ODOR: CLEAR, COLORLESS LIQUEFIED GAS WITH A SLIGHT ETHEREAL ODOR.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD) : NONFLAMMABLE
LOWER EXPLOSION LIMIT: NA% (VOL.) GAS IN AIR
UPPER EXPLOSION LIMIT: NA% (VOL.) GAS IN AIR
EXTINGUISHING MEDIA : DRY CHEMICAL EXTINGUISHER (B-C), WATER

SPECIAL FIRE FIGHTING PROCEDURES

SELF CONTAINED BREATHING APPARATUS (SCBA) IS REQUIRED IF CYLINDERS RUPTURE OR CONTENTS ARE RELEASED UNDER FIRE CONDITIONS. COOL VAPOR SPACE OF THE STORAGE CONTAINER WITH WATER SPRAY. REMOVE PERSONNEL IN GENERAL AREA. NONFLAMMABLE BLENDS OF 134A CONTAINING FLAMMABLE COMPONENTS, MAY, IN THE EVENT OF A SPILL OR LEAK, FRACTIONATE, IE, THE COMPONENTS MAY SEPARATE, PRODUCING COMPOSITIONS THAT ARE FLAMMABLE.

UNUSUAL FIRE AND EXPLOSION HAZARDS

OTHER BURNING MATERIAL MAY CAUSE THIS MATERIAL TO BURN WEAKLY. EXTINGUISHANT FOR OTHER BURNING MATERIALS IN AREA IS SUFFICIENT TO STOP BURNING. NONFLAMMABLE BLENDS OF 134A CONTAINING FLAMMABLE COMPONENTS, MAY, IN THE EVENT OF A SPILL OR LEAK, FRACTIONATE, IE, THE COMPONENTS MAY SEPARATE, PRODUCING COMPOSITIONS THAT ARE FLAMMABLE. USE WATER OR FOG TO COOL CONTAINERS. CYLINDERS ARE EQUIPPED WITH PRESSURE AND TEMPERATURE RELIEF DEVICES BUT MAY RUPTURE UNDER FIRE CONDITIONS. DECOMPOSITION MAY OCCUR.

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SECTION V HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

INGESTION- LIQUID INGESTION MAY CAUSE FROSTBITE. ASPIRATION HAZARD!

INHALATION- INHALATION OF VAPOR MAY PRODUCE ANESTHETIC EFFECTS AND FEELING OF EUPHORIA. PROLONGED OVEREXPOSURE CAN CAUSE RAPID BREATHING, HEADACHE, DIZZINESS, NARCOSIS, UNCONSCIOUSNESS, AND DEATH FROM ASPHYXIATION, DEPENDING ON CONCENTRATION AND TIME OF EXPOSURE.

SKIN CONTACT- CONTACT WITH EVAPORATING LIQUID CAN CAUSE FROSTBITE.

EYE CONTACT- LIQUID CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION, AND POSSIBLE FREEZE BURNS.

EMERGENCY FIRST AID PROCEDURES

INGESTION- DO NOT INDUCE VOMITING. CONTACT A PHYSICIAN IMMEDIATELY.

INHALATION- REMOVE TO FRESH AIR. IF BREATHING HAS STOPPED, RESTORE BREATHING AT ONCE. ADMINISTER OXYGEN AND GET MEDICAL HELP.

SKIN CONTACT- FOR LIQUID CONTACT, WARM AREAS GRADUALLY AND GET MEDICAL ATTENTION IF THERE IS EVIDENCE OF TISSUE DAMAGE. FLUSH AREA WITH PLENTY OF WATER. TREAT AS FROSTBITE.

EYE CONTACT- FOR LIQUID CONTACT, IRRIGATE WITH RUNNING WATER FOR MINIMUM OF 15 MINUTES. CONSULT PHYSICIAN IMMEDIATELY IF FROSTBITE OCCURS.

SECTION VI REACTIVITY DATA

STABILITY:	STABLE
HAZARDOUS POLYMERIZATION:	CAN NOT OCCUR
INCOMPATIBILITY (MATERIALS TO AVOID):	FINELY DIVIDED METALS, MAGNESIUM AND ALLOYS CONTAINING MORE THAN 2% MAGNESIUM. CAN REACT VIOLENTLY IF IN CONTACT WITH ALKALI OR ALKALINE EARTH METALS SUCH AS SODIUM, POTASSIUM, OR BARIUM.
HAZARDOUS DECOMPOSITION PRODUCTS:	HALOGEN ACIDS BY THERMAL DECOMPOSITION
CONDITIONS TO AVOID:	HIGH HEAT AND OPEN FLAMES

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

VENTILATE THE AREA - ESPECIALLY LOW AREAS WHERE VAPORS MAY ACCUMULATE. REMOVE OPEN FLAMES. USE SELF CONTAINED BREATHING APPARATUS. FOR LARGE SPILLS OR RELEASES MECHANICAL VENTILATION SHOULD BE USED IN LOW PLACES.

NONFLAMMABLE BLENDS OF 134A CONTAINING FLAMMABLE COMPONENTS, MAY, IN THE EVENT OF A SPILL OR LEAK SEPARATE, PRODUCING COMPOSITIONS THAT ARE FLAMMABLE.

WASTE DISPOSAL RECYCLE OR RECLAIM IF POSSIBLE

** COMPLY WITH ALL STATE AND LOCAL REGULATIONS **

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SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS.
PROTECTIVE GLOVES: IMPERVIOUS, INSULATED GLOVES RECOMMENDED
EYE PROTECTION: FACESHIELD OR GOGGLES RECOMMENDED
OTHER: IMPERVIOUS CLOTHING FOR PROLONGED OR REPEATED CONTACT

VENTILATION

USE WITH ADEQUATE VENTILATION. CHECK AIR FOR CONTAMINANT AND FOR OXYGEN DEFICIENCY. WHERE VENTILATION IS INADEQUATE, USE A LOCAL EXHAUST SYSTEM TO REMOVE VAPORS.

SECTION IX SPECIAL PRECAUTIONS

DO NOT GET IN EYES, ON SKIN OR CLOTHING. DO NOT BREATHE VAPORS, MIST OR GAS. KEEP AWAY FROM HEAT, SPARKS AND FLAMES. STORE IN TIGHTLY CLOSED CONTAINERS AWAY FROM DIRECT SUNLIGHT, HEAT, AND SOURCES OF IGNITION. STORE AT TEMPERATURES NOT EXCEEDING 113 ° F. EMPTY CONTAINERS MAY CONTAIN HAZARDOUS RESIDUE. DO NOT SMOKE. DO NOT CUT, GRIND OR WELD ON OR NEAR CONTAINER DUE TO POSSIBLE TOXIC FUME GENERATION.

SECTION X MISCELLANEOUS INFORMATION

TRANSPORT INFORMATION

1,1,1,2 TETRAFLUOROETHANE

2.2, NON FLAMMABLE GAS, UN3159
 LABELED / PLACARDED NON FLAMMABLE GAS

NPCA - HMIS RATINGS

HEALTH 1
FLAMMABILITY 0
REACTIVITY 1
PERSONAL PROTECTION -

(PERSONAL PROTECTION INFORMATION TO BE SUPPLIED BY THE USER)

REGULATORY INFORMATION

THE INGREDIENTS LISTED IN SECTION 2 ARE REPORTED/INCLUDED IN THE U.S. TSCA INVENTORY AND CANADIAN DOMESTICS SUBSTANCE LIST.