

===== Product Identification =====

Product ID:SUVA 134A

MSDS Date:03/23/1999

FSC:6830

NIIN:01-370-8756

Status Code:A

MSDS Number: CKSCQ

=== Responsible Party ===

Company Name:DU PONT E I NEMOURS & CO CHEMICALS & PIGMENTS DEPT

Address:1007 MARKET ST

City:WILMINGTON

State:DE

ZIP:19898

Country:US

Info Phone Num:800-441-7515

Emergency Phone Num:(800)424-9300

Resp. Party Other MSDS

Num.:DU000693

Preparer's Name:MSDS COORDINATOR

Chemtrec Ind/Phone:(800)424-9300

CAGE:23037

=== Contractor Identification ===

Company Name:DU PONT E I NEMOURS & CO CHEMICALS & PIGMENTS DEPT

Address:1007 MARKET ST

Box:City:WILMINGTON

State:DE

ZIP:19898

Country:US

Phone:800-441-7515

CAGE:23037

===== Composition/Information on Ingredients =====

Ingred Name:ETHANE, 1,1,1,2-TETRAFLUORO-

CAS:811-97-2

= Wt:100.

Other REC Limits:1000 PPM, 8 & 12 HR

OSHA PEL:NONE ESTABLISHED

ACGIH TLV:

NONE ESTABLISHED

===== Hazards Identification =====

Reports of Carcinogenicity:NTP:UNKNOWN IARC:NO OSHA:NO

Health Hazards Acute and Chronic:INHALATION: ETHANE,

1,1,1,2-TETRAFLUORO-GROSS OVEREXPOSURE MAY CAUSE: CENTRAL NERVOUS SYSTEM DEPRSSION WITH DIZZINESS, CONFUSION, INCOORDINATION, DROWSINESS OR UNCONSCIOUSNESS. IRREGULAR HEART BEAT WI TH A STRANGE SENSATION IN THE CHEST, HEART THUMPING, APPREHENSION, LIGHTHEADEDNESS, FEELING OF FAI

NTING, DIZZINESS, WEAKNESS,

SOMETIMES PROGRESSING TO LOSS OF CONSCIOUSNESS AND DEATH.

SUFFOCATION, IF A IR IS DISPLACED BY VAPORS. SKIN: IMMEDIATE

EFFECTS OF OVEREXPOSURE MAY INCLUDE: FROSTBITE, IF LIQUID OR

ESCAPING VAPOR CONTACTS THE SKIN. EYE: FROSTBITE-LIKE EFFECTS MAY

OCCUR IF THE LIQUID OR ESCAPIN G VAPORS CONTACT THE EYES.

Explanation of Carcinogenicity:NONE OF THE COMPONENTS PRESENT IN THIS

MATERIAL AT CONCENTRATIONS EQUAL TO OR GREATER THAN 0.1% ARE LISTED BY

IARC, NPT, OSHA OR ACGIH AS A CARCINOGEN.

Effects of Overexposure:INHALATION: ETHANE, 1,1,1,2-TETRAFLUORO-GROSS

OVEREXPOSURE MAY CAUSE: CENTRAL NERVOUS SYSTEM DEPRSSION WITH

DIZZINESS, CONFUSION, INCOORDINATION, DROWSINESS OR

UNCONSCIOUSNESS. IRREGULAR HEART BEAT WI TH A STRANGE SENSATION IN

THE CHEST, HEART THUMPING, APPREHENSION, LIGHTHEADEDNESS, FEELING

OF FAINTING, DIZZINESS, WEAKNESS, SOMETIMES PROGRESSING TO LOSS OF

CONSCIOUSNESS AND DEATH. SUFFOCATION, IF A IR IS DI

SPLACED BY

VAPORS. SKIN: IMMEDIATE EFFECTS OF OVEREXPOSURE MAY INCLUDE:

FROSTBITE, IF LIQUID OR ESCAPING VAPOR CONTACTS THE SKIN. EYE:

FROSTBITE-LIKE EFFECTS MAY OCCUR IF THE LIQUID OR ESCAPIN G VAPORS

CONTACT THE EYES.

Medical Cond Aggravated by Exposure:INCREASED SUSCEPTIBILITY TO EFFECTS

OF MATERIAL MAY BE OBSERVED IN PERSONS WITH PRE-EXISTING DISEASE OF

CENTRAL NERVOUS SYSTEM & CARDIOVASCULAR SYSTEM.

===== First Aid Measures =====

=

First Aid:INHALATION: IF HIGH CONCENTARATIONS INHALED, IMMEDIATELY

REMOVE TO FRESH AIR. KEEP PERSON CLAM. IF NOT BREATHING, GIVE

ARTIFICIAL RESPIRATION. IF BREATHING DIFFICULT, GIVE OXYGEN. CALL

PHYSICIAN. SKI N: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH

PLENTY WATER FOR AT LEAST 15 MINUTES, WHILE REMOVING CONTAMINATED

CLOTHING & SHOES. CALL PHYSICIAN . WASH CONTAMINATED CLOTHING

BEFORE REUSE. TREAT FOR FROSTBITE IF NECESSARY BY GENTLY WARMING

AFFECTED AREA

. EYE: IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH
PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL PHYSICIAN. INGESTION:
INGESTION IS NOT A POTENTIAL ROUTE OF EXPOSURE.

===== Fire Fighting Measures =====

Flash Point:WILL NOT BURN

Lower Limits:NA

Upper Limits:NA

Extinguishing Media:USE MEDIA APPROPRIATE FOR SURROUNDING MATERIAL.
COOL TANK/CONTAINER WITH WATER SPRAY.

Fire Fighting Procedures:SELF-CONTAINED BREATHING APPARATUS MAY BE
REQUIRED I

F CYLINDERS RUPTURE OR RELEASE UNDER FIRE CONDITIONS.

Unusual Fire/Explosion Hazard:NOT FLAMMABLE UP TO 100C AT ATMOSPHERIC
PRESSURE BUT MIXTURES WITH HIGH CONCENTRATIONS OF AIR AT ELEVATED
PRESSURE CAN BECOME COMBUSTIBLE AT AMBIENT TEMP. AS TEMPERATURE OF
MATERIAL IS INCREASED LOWER PRESSURE (>ATMOSPHERIC) CAN CREATE
SAME EFFECT. DO NOT MIX WITH HIGH CONCENTRATIONS OF AIR ABOVE
ATMOSPHERIC PRESSURE.

===== Accidental Release Measures =====

Spill

Release Procedures:VENTILATE AREA, ESPECIALLY LOW OR ENCLOSED
PLACES WHERE HEAVY VAPORS MIGHT COLLECT. REMOVE OPEN FLAMES. USE
SELF-CONTAINED BRATHING APPARATUS (SCBA) IF LARGE SPILL OR LEAK
OCCURS.

===== Handling and Storage =====

Handling and Storage Precautions:USE WITH SUFFICIENT VENTILATION TO
KEEP EMPLOYEE EXPOSURE BELOW RECOMMENDED LIMITS. HFC-134A SHOULD
NOT BE MIXED WITH AIR FOR LEAK TESTING OR USED FOR ANY OTHER
PURPOSE ABO

VE ATMOSPHERIC PRESSURE. SE E FLAMMABLE PROPERTIES
SECTION. STORE IN A CLEAN, DRY PALCE. DO NOT HEAT ABOVE 52C (126
F).

Other Precautions:AVOID CONTACT WITH CHLORINE OR OTHER STRONG OXIDIZING
AGENTS SHOULD BE AVOIDED.

===== Exposure Controls/Personal Protection =====

Respiratory Protection:UNDER NORMAL MANUFACTURING CONDITIONS, NO
RESPIRATORY PROTECTION IS REQUIRED WHEN USING THIS PRODUCT.
SELF-CONTAINED BREATHING APPATATUS (SCBA) IS REQUIRED IF A LARGE

RELEASE OCCURS.

Ventilation:NORMAL VENTILATION FOR STANDARD MANUFACTURING PROCEDURES IS
GENERALLY ADEQUATE. LOCAL EXHAUST SHOULD BE USED WHEN LARGE AMOUNTS
ARE RELEASED.

Protective Gloves:IMPERVIOUS

Eye Protection:CHEMICAL SPLASH GOGGLES.

Other Protective Equipment:NOT PROVIDED

Work Hygienic Practices:NOT PROVIDED

Supplemental Safety and Health

===== Physical/Chemical Properties =====

HCC:G3

Boiling Pt:=-26.5C, -15.7F

Vapor Pres:96 PSIA @ 25C

Vapor Density

:3.6

Spec Gravity:1.208 @ 77F

Evaporation Rate & Reference:>1 (CCL4=1)

Solubility in Water:0.15 WT% @ 25C

Appearance and Odor:COLORLESS, LIQUIFIED GAS, SLIGHT ETHER ODOR.

Percent Volatiles by Volume:100

===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid:YES

INCOMPATIBLE WITH ALKALI OR ALKALINE EARTH METALS-POWDERED AL. ZN, BE,
ETC.

Stability Condition to Avoid:AVOID OPEN FLAMES AND HIGH TEMPERATURES.

Hazardous Decomposition Products

ts:DECOMPOSITION PRODUCTS ARE HAZARDOUS.

THIS MATERIAL CAN BE DECOMPOSED BY HIGH TEMPERATURES (OPEN FLAMES,
GLOWING METAL SURFACES, ETC.) FORMING HYDROFLUORIC ACID AND
POSSIBLY CARBONYL FLUORIDE.

Conditions to Avoid Polymerization:WILL NOT OCCUR.

===== Toxicological Information =====

Toxicological Information:SHORT DURATION OF VAPOR SPRAY PRODUCED VERY
SLIGHT EYE IRRITATION. ANIMAL TESTING INDICATES MATERIAL IS SLIGHT
SKIN IRRITANT BUT NOT SKIN S

SENSITIZER. INHALATION: 4 HR, ALC, RAT:
567000 PPM. SINGLE EXPOSURE CAUSED CARDIAC SENSITIZATION, A
POTENTIALLY FATAL DISTURBANCE OF HEART RHYTHM ASSOCIATED WITH
HEIGHTENED SENSITIVITY TO ACTION OF EPINEPHRINE. LOWEST OBSERVED
ADVERSE EFFECT LEVEL FOR CARDIAC SENSITIZATION: 75000 PPM. SINGLE
EXPOSURE CAUSED LETHARGY, NARCOSIS, INCREASED RESPIRATORY RATES
(TEMPORARY EFFECTS). SINGLE DOSE TO NEAR LETHAL DOSE: PULMONARY
EDEMA. CONTINUED IN OTHER INFORMATION FIELD.

===

===== Ecological Information =====

Ecological:AQUATIC TOXICITY: 48 HR EC50 - DAPHNIA MAGNA: 980 MG/L; 96
HR LC50 - RAINBOW TROUT: 450 MG/L.

===== Disposal Considerations =====

Waste Disposal Methods:CONTAMINATED HFC-134A CAN BE RECOVERED BY
DISTILLATION OR REMOVED TO A PERMITTED WASTE DISPOSAL FACILITY.
COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

===== MSDS Transport Information =====

===

Transport Information:DOT INFORMATION: 1,1,1,2-TETRAFLUOROETHANE, 2,2,
UN NO 3159, NONFLAMMABLE GAS LABEL.

===== Regulatory Information =====

SARA Title III Information:SARA SECTION 311/312 CLASSES: ACUTE,
CHRONIC, PRESSURE. NOT ON SARA EHS, CERCLA HAZARDOUS SUBSTANCE,
SARA TOXIC CHEMICAL LISTS.

Federal Regulatory Information:INCLUDED IN TSCA INVENTORY.

State Regulatory Information:NOT PROVIDED

===== Other Information =====

=====

Disclaimer (provided with this information by the compiling agencies):
This information is formulated for use by elements of the Department
of Defense. The United States of America in no manner whatsoever,
expressly or implied, warrants this information to be accurate and
disclaims all liability for its use. Any person utilizing this
document should seek competent professional advice to verify and
assume responsibility for the suitability of this information to their

r
particular situation.