

DU PONT E I DE NEMOURS AND CO INC -- SUVA HP 81 (R 402 B) -- 6830-01-392-0991  
===== Product Identification =====

Product ID:SUVA HP 81 (R 402 B)  
MSDS Date:12/06/1997  
FSC:6830  
NIIN:01-392-0991  
MSDS Number: CFKVB  
=== Responsible Party ===  
Company Name:DU PONT E I DE NEMOURS AND CO INC  
Address:DU PONT CHEMICALS FLUORCHEMICALS  
City:WILMINGTON  
State:DE  
ZIP:19898  
Country:US  
Info Phone Num:800-441-9442  
Emergency Phone Num:800-441-3637  
Resp. Party Other MSDS Num.:DU005603  
Chemtrec Ind/Phone:(800)424-9300  
CAGE:2S827  
=== Contractor Identification ===  
Company Name:DU PONT FLUOROPRODUCTS  
Address:1007 MARKET STREET  
Box:City:WILMINGTON  
State:DE  
ZIP:19898  
Country:US  
Phone:1-800-441-7515  
Contract Num:SP0450-99-M-JT25  
CAGE:2S827

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

Ingred Name:ETHANE,PENTAFLUORO- (HFC-125)/PENTAFLUOROETHANE  
CAS:354-33-6  
= Wt:38.  
Other REC Limits:NONE RE  
COMMENDED

Ingred Name:METHANE,CHLORODIFLUORO- (HCFC-22)/CHLORODIFLUOROMETHANE  
(SARA 313) (CERCLA)  
CAS:75-45-6  
RTECS #:PA6390000  
= Wt:60.  
Other REC Limits:NONE RECOMMENDED  
OSHA PEL:1000 PPM  
ACGIH TLV:1000 PPM; 9596  
Ozone Depleting Chemical:2

Ingred Name:PROPANE  
CAS:74-98-6  
RTECS #:TX2275000  
= Wt:2.  
Other REC Limits:NONE RECOMMENDED  
OSHA PEL:1000 PPM  
ACGIH TLV:ASPHYXIAN; 9596

TWA(HCFC-22)

Routes of Entry: Inhalation:YES Skin:NO Ingestion:NO

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

Health Hazards Acute and Chronic:TARGET ORGANS:CNS, CVS. ACUTE- HARMFUL IF INHALED. MAY CAUSE HEART IRREGULARITIES, UNCONSCIOUSNESS OR DEATH. INTENTIONAL MISUSE IS FATAL. VAPOR REDUCES OXYGEN & IS HEAVIER THAN AIR. EYE/SKIN CONTACT WITH LIQUID CAN CAUSE FROSTBITE. VAPORS CAN CAUSE EYE IRRITATION. INGESTION IS UNLIKELY. CHRONIC- UNKNOWN.

Explanation of Car

cinogenicity:NONE OF THE COMPONENTS PRESENT IN THIS MATERIAL AT CONCENTRATIONS GREATER THAN 0.1% ARE LISTED BY IARC, NTP, OSHA OR ACGIH AS A CARCINOGEN.

Effects of Overexposure:TEMPORARY NERVOUS SYSTEM DEPRESSION WITH ANAESTHETIC EFFECTS SUCH AS DIZZINESS, HEADACHE, CONFUSION, INCOORDINATION, LOSS OF CONSCIOUSNESS, IRREGULAR PULSE, PALPITATIONS, INADEQUATE CIRCULATION, FROST BITE, IRRITATION, BLURRED VISION, TEARING.

Medical Cond Aggravated by Exposure:INDIVIDUALS WITH PREEXISTING

DISEASES OF THE CENTRAL NERVOUS OR CARDIOVASCULAR SYSTEM MAY HAVE INCREASED SUSCEPTIBILITY TO THE TOXICITY OF EXCESSIVE EXPOSURE.

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

First Aid:EYE:IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION IF NEEDED. SKIN: IMMEDIATELY FLUSH WITH PLENTY OF LUKEWARM WATER. GET MEDICAL ATTENTION IF FROSTBITE OCCURS. INHALED:REMOVE TO FRESH AIR & PROVIDE OXYGEN/ARTIFICIAL

RESPIRATION IF NEEDED. INGESTION: NOT CONSIDERED A POTENTIAL ROUTE OF EXPOSURE. NOTE TO PHYSICIAN:CATECHOLAMINE DRUGS, SUCH AS ADRENILINE, SHOULD BE USED WITH SPECIAL CAUTION ONLY IN SITUATIONS OF EMERGENCY LIFE SUPPORT.

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

Flash Point:WILL NOT BURN

Extinguishing Media:AS APPROPRIATE FOR COMBUSTIBLES IN AREA.

Fire Fighting Procedures:KEEP CYLINDERS COOL WITH WATER SPRAY OR FOG. SELF-CONTAINED BREATHING APPARA

TUS (SCBA) IS REQUIRED IF CYLINDERS

RUPTURE AND CONTENTS ARE RELEASED UNDER FIRE CONDITIONS. WATER RUNOFF SHOULD BE CONTAINED AND NEUTRALIZED PRIOR TO RELEASE.

Unusual Fire/Explosion Hazard:CYLINDERS MAY RUPTURE UNDER FIRE

CONDITIONS. PRODUCT SHOULD NOT BE USED OR ALLOWED TO EXIST WITH HIGH CONCENTRATIONS OF AIR ABOVE ATMOSPHERIC PRESSURE.

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

Spill Release Procedures:VENTILATE AREA, ESPECIALLY LOW PLACES WHERE

VAPORS MIGHT COLLECT. REMOVE OPEN FLAMES. USE SELF-CONTAINED BREATHING APPARATUS FOR LARGE SPILLS OR RELEASES.

Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:STORE IN A COOL, DRY AREA. DO NOT HEAT ABOVE 125F (52C).

Other Precautions:AVOID BREATHING VAPORS. AVOID EYE OR SKIN CONTACT WITH LIQUID. WASH THOROUGHLY AFTER HANDLING. USE WITH ADEQUATE VENTILATION TO KEEP EMPLOYEE EXPOSURE BELOW THE RECOMMENDED LIMITS.

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

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

Ventilation:USE WITH SUFFICIENT VENTILATION TO KEEP EMPLOYEE EXPOSURE BELOW THE RECOMMENDED LIMITS. LOCAL EXHAUST FOR LARGE RELEASES. MECHANICAL FOR ENCLOSED SPACE

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Protective Gloves:IMPERVIOUS GLOVES.

Eye Protection:CHEMICAL SPLASH GOGGLES.

Other Protective Equipment:REFRIGERANT CONCENTRATION MONITORS MAY BE NECESSARY TO DETERMINE VAPOR CONCENTRATIONS IN WORK AREAS PRIOR TO USE OF TORCHES OR OTHER OPEN FLAMES, OR IF EMPLOYEES ARE ENTERING ENCLOSED AREAS.

Work Hygienic Practices:WASH THOROUGHLY AFTER HANDLING.

Supplemental Safety and Health

NONE SPECIFIED BY MANUFACTURER.

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

HCC:G3

Boiling Pt:=-47.2C, -53.F

Vapor Pres:9257 MM HG @ 77F

Vapor Density:>1

Spec Gravity:1.14 @ 77F LIQ.

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

Solubility in Water:NOT DETERMINED

Appearance and Odor:CLEAR, COLORLESS LIQUEFIED GAS - SLIGHT ETHEREAL ODOR.

Percent Volatiles by Volume:100 %

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

Stability Indicator/Materials to Avoid:YES

ALKALI OR ALKALINE EARTH METALS, POWDERED ALUMINUM, ZINC, BERYLLIUM, ETC.

Stability

Condition to Avoid:MATERIAL IS STABLE. HOWEVER, AVOID OPEN FLAMES AND HIGH TEMPERATURES.

Hazardous Decomposition Products:DECOMPOSITION PRODUCTS ARE HAZARDOUS.

"SUVA" HP 81 CAN BE DECOMPOSED BY HIGH TEMPERATURES (OPEN FLAMES, GLOWING METAL SURFACES, ETC.) FORMING HYDROCHLORIC AND HYDROFLUORIC ACIDS AND IRRITATING.

Conditions to Avoid Polymerization:WILL NOT OCCUR.

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

Toxicological Information:ANIMAL DATA: THE BLEND IS UNTESTED.

PENTAFLUOROETHANE: INHALATION 4 HR ALC: >709,000 PPM IN RATS.

LOAEL: 100,000 PPM. NOAEL: 50,000 PPM. NO ANIMAL DATA AVAILABLE TO DEFINE CARCINOGENIC, DEVELOPMENTAL OR REPRODUCTIVE HAZARDS.

CHLORODIFLUOROMETHANE: INHALATION 4 HR LC50: 220,000 PPM IN RATS.

COMPOUND IS A SKIN IRRITANT AND SLIGHT EYE IRRITANT. COMPOUND DID EXHIBIT SOME CHRONIC EFFECTS: SMALL BUT STATISTICALLY SIGNIFICANT INCREASE IN LATE-OCCURRING TUMORS IN SALIVARY GLANDS OF MALE RATS;

MUTAGENIC TO SOME STRAINS OF BACTERIA BUT NOT TO MAMMALIAN CELL CULTURE. SOME DEVELOPMENTAL TOXICITY AT HIGH CONCENTRATIONS.

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

Ecological:AQUATIC TOXICITY: HCFC-22: 48 HR EC50 (DAPHNIA MAGNA): 433 MG/L.

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

Waste Disposal Methods:RECLAIM BY DISTILLATION OR REMOVE TO A PERMITTED WASTE DISPOSAL FACILITY. COMPLY WITH FEDERAL, STATE AND LOCAL REGULATIONS

ULATIONS.

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

Transport Information:LIQUIFIED GAS, N.O.S. (CHLORODIFLUOROMETHANE AND PENTAFLUOROETHANE). HAZARD CLASS: 2.2. UN NO: 3163. DOT/IMO LABEL: NONFLAMMABLE GAS. SHIPPING CONTAINERS: TANK CARS, CYLINDERS, TON TANKS.

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

SARA Title III Information:SECTIONS 311/312: ACUTE: YES; CHRONIC: NO; FIRE: NO; REACTIVITY: NO; PRESSURE: YES. SARA TOXIC

CHEMICAL LIST:

NO. SARA EXTREMELY HAZARDOUS SUBSTANCE LIST: NO.

Federal Regulatory Information:CERCLA HAZARDOUS SUBSTANCE LIST: NO.

TSCA INVENTORY STATUS: REPORTED/INCLUDED.

State Regulatory Information:NONE SPECIFIED BY MANUFACTURER.

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

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