

DU PONT E I DE NEMOURS AND CO INC -- FREON 116 REFRIGERANT/NITROUS OXIDE BLEND 90/10  
-- 6830-01-296-2459

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

Product ID:FREON 116 REFRIGERANT/NITROUS OXIDE BLEND 90/10

MSDS Date:10/16/1996

FSC:6830

NIIN:01-296-2459

MSDS Number: BHQRM

=== Responsible Party ===

Company Name:DU PONT E I DE NEMOURS AND CO INC

Address:DU PONT CHEMICALS FLUORCHEMICALS

City:WILMINGTON

Stat

e:DE

ZIP:19898

Country:US

Info Phone Num:302-774-6822

Emergency Phone Num:800-441-3637,800-424-9300(CHEMTREC)

Resp. Party Other MSDS Num.:2051FR

Preparer's Name:W.J. BROCK

CAGE:2S827

=== Contractor Identification ===

Company Name:ALLIED HEALTHCARE PRODUCTS, INC

Box:UNKNOW

CAGE:6V882

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-A244

CAGE:2S827

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

Ingred Name:HEXAFLUOROETHANE ("FREON" 116)

CAS:76-16-4

RTECS #:KI4110000

= Wt:90.

Other REC Limits:NONE RECOMMENDED

Ingred Name:NITROUS OXIDE

CAS:10024-97-2

RTECS #:QX1350000

= Wt:10.

Other REC Limits:50 PPM (DUPONT TWA)

ACGIH TLV:50 PPM; 9394

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

LD50 LC50 Mixture:ORAL LD50 (RAT) IS >15,000 MG (N2O)/KG.

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

Reports of Carcinogenicity:NTP:NO IA

RC:NO OSHA:NO

Health Hazards Acute and Chronic:INHALATION OF HIGH CONCENTRATIONS OF VAPOR IS HARMFUL & MAY CAUSE HEART IRREGULARITIES, UNCONSCIOUSNESS, OR DEATH. INTENTIONAL MISUSE OR DELIBERATE INHALATION MAY CAUSE DEATH WITHOUT WARNING. VAPOR REDUCES OXYGEN AVAILABLE FOR BREATHING & IS HEAVIER THAN AIR. LIQUID CONTACT CAN CAUSE FROSTBITE.

Explanation of Carcinogenicity:NONE

Effects of Overexposure:CONTACT WITH THE LIQUID MAY CAUSE FROSTBITE.

OVEREXPOSURE BY INHALATION

MAY INCLUDE NONSPECIFIC DISCOMFORT, SUCH

AS NAUSEA, HEADACHE, OR WEAKNESS; TEMPORARY NERVOUS SYSTEM DEPRESSION WITH ANESTHETIC EFFECTS SUCH AS DIZZINESS, HEADACHE, CONFUSION, INCOORDINATION, & LOSS OF CONSCIOUSNESS (LOSS OF VISION HAS BEEN OBSERVED ON REGAINING CONSCIOUSNESS WITH SEVERAL CASES OF PERMANENT VISUAL IMPAIRMENT AND/OR BLINDNESS); IRRITATION OF THE UPPER RESPIRATORY PASSAGES; OR TEMPORARY ALTERATION OF THE HEART'S ELECTRICAL ACTIVITY WITH IRREGULAR PULSE

Medical Cond Aggravated by Exposure:INDIVIDUALS WITH PRE-EXISTING DISEASES OF THE CENTRAL NERVOUS, CARDIOVASCULAR, REPRODUCTIVE, OR OCULAR SYSTEM MAY HAVE INCREASED SUSCEPTIBILITY TO THE TOXICITY OF EXCESSIVE EXPOSURES.

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

First Aid:INHALATION-IF INHALED, IMMEDIATE REMOVE TO FRESH AIR. KEEP PERSON CALM. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

SKIN-FLUSH

SKIN WITH PLENTY OF WATER FOR 15 MIN. TREAT FOR FROST BITE BY GENTLY WARMING AREA. CALL A PHYSICIAN IF IRRITATION PERSISTS. EYE-IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR 15 MIN. CALL A PHYSICIAN. INGESTION- INGESTION IS NOT CONSIDERED A POTENTIAL ROUTE OF EXPOSURE.

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

Flash Point Method:TOC

Flash Point:NONE

Autoignition Temp:=600.C, 1112.F

Extinguishing Media:AS APPROPRIATE FOR COMBUSTIBLES

IN AREA.

Fire Fighting Procedures:USE WATER SPRAY OR FOG TO COOL CONTAINERS.

SELF-CONTAINED BREATHING APPARATUS (SCBA) IS REQUIRED IF CYLINDERS RUPTURE OR RELEASE UNDER FIRE CONDITIONS.

Unusual Fire/Explosion Hazard:CYLINDERS EQUIPPED WITH PRESURE AND TEMPERATURE RELIEF DEVICES, BUT STILL MAY RUPTURE UNDER FIRE CONDITIONS. NITROUS OXIDE SUPPORTS COMBUSTION.

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

Spill Release Procedures:VENTILATE AREA, ESPECIALLY LOW OR ENCLOSED

PLACES WHERE HEAVY VAPORS MIGHT COLLECT. REMOVE OPEN FLAMES. USE SELF-CONTAINED BREATHING APPARATUS (SCBA) IF A LARGE SPILL OR LEAK OCCURS. USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT DURING CLEAN-UP.

Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:AVOID BREATHING VAPORS AND CONTACT OF SKIN WITH LIQUID OR COLD VAPORS. USE WITH SUFFICIENT VENTILATION TO

KEEP EXPOSURE BELOW RECOMMENDED LIMITS.

Other Precautions:STORE CONTAINERS IN A CLEAN, DRY AREA. DO NOT HEAT ABOVE 125F (52C).

===== 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:NORMAL VENTILATION GENERALLY ADEQUATE.USE LOCAL EXHAUST WHEN LARGE

AMOUNTS RELEASED,MECHANICAL IN LOW OR ENCLOSED PLACES

Protective Gloves:IMPERVIOUS GLOVES FOR HANDLING LIQUID.

Eye Protection:SPLASH GOGGLES FOR HANDLING LIQUID.

Other Protective Equipment:NONE SPECIFIED BY MANUFACTURER.

Work Hygienic Practices:WASH AFTER HANDLING AND BEFORE EATING, DRINKING, OR SMOKING.

Supplemental Safety and Health

INHALATION OF HIGH CONCENTRATIONS OF VAPOR IS HARMFUL AND MAY CAUSE HEART IRREGULARITIES, UNCONSCIOUSNESS, OR DEATH. INTENTIONAL MISUSE OR DELIBERATE

TE INHALATION MAY CAUSE DEATH WITHOUT WARNING. VAPOR  
REDUCES OXYGEN AVAILABLE FOR BREATHING AND IS HEAVIER THAN AIR.  
LIQUID CONTACT CAN CAUSE FROSTBITE.

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

HCC:G3

Boiling Pt:=-97.6C, -143.9F

Vapor Pres:836 PSIA

Vapor Density:3.9(AIR=1)

Spec Gravity:1.587

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

Percent Volatiles by Volume:100

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

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ability Indicator/Materials to Avoid:YES

ALKALI OR ALKALINE EARTH METALS-POWDERED AL, ZN, BE, ETC. NITROUS OXIDE  
FORMS EXPLOSIVE MIXTURES WITH NH<sub>3</sub>, CO, H<sub>2</sub>, PH<sub>3</sub>.

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

Hazardous Decomposition Products:HYDROCHLORIC AND HYDROFLUORIC ACID,  
POSSIBLY CARBONYL FLUORIDE, AND OTHER OXIDES OF NITROGEN.

Conditions to Avoid Polymerization:WILL NOT OCCUR.

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

Toxicological

Information:ANIMAL DATA: INHALATION 4-HOUR LC50: >800,000

PPM IN RATS. EFFECTS OBSERVED IN ANIMAL FROM EXPOSURES BY  
INHALATION INCLUDES DECREASED GROWTH RATE, PULMONARY CHANGES,  
IRREGULAR RESPIRATION, INCREASED URINE VOLUME AND CREATILINE,  
REVERSIBLEPATHOLOGICAL CHANGES IN THE KIDNEYS, AND INCREASED  
URINARY FLUORIDE CONCENTRATION. ONE STUDY SHOWED NO CARDIAC  
EFFECTS IN DOGS AT A CONCENTRATION OF 20% "FREON" 116, WHILE  
ANOTHER STUDY DID SHOW SOME EFFECTS IN BOTH GUI  
NEA PIGS AND DOGS.

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

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

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

Transport Information:DOT/IMO/IATA PROPER SHIPPING NAME: COMPRESSED  
GASES, N.O.S. (HEXAFLUOROETHANE, NITROUS OXIDE). HAZARD CLASS: 2.2.  
UN NO.: 1956. DOT/IMO LABEL: NONFLAMMABLE

GAS. SHIPPING CONTAINERS:  
CYLINDERS.

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===== Regulatory Information =====  
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SARA Title III Information:TITLE III HAZARD CLASSIFICATIONS SECTIONS  
311, 312. ACUTE: YES, CHRONIC: NO. FIRE: NO. REACTIVITY: NO.  
PRESSURE: YES. LISTS; EXTREMELY HAZARDOUS SUBSTANCE, CERCLA  
HAZARDOUS SUBSTANCE, TOXIC CHEMICALS -NO.  
Federal Regulatory Information:TSCA INVENTORY STATUS:  
REPORTED/INCLUDED.

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