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MSDS Safety Information
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MSDS Date: 11/21/1994
MSDS Num: CKLNV
Product ID: FREON 113
MFN: 01
Responsible Party
Cage: 1B464
Name: FISHER SCIENTIFIC
Address: 1 REAGENT LANE
City: FAIRLAWN NJ 07410
Info Phone Number: 201-796-7100
Emergency Phone Number: 800-424-9300
Chemtrec IND/Phone: (800)424-9300
Review Ind: Y
Published: Y

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Contractor Summary
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Cage: 1B464
Name: FISHER SCIENTIFIC CO. CHEMICAL MFG DIV
Address: 1 REAGENT LANE
City: FAIR LAWN NJ 07410-2802
Phone: 201-796-7100
Cage: 6M140
Name: SCIENTIFIC SUPPLY AND EQUIPMENT INC
Address: 926 POPLAR PL
Box: 22607
City: SEATTLE WA 98144
Phone: 206-324-8550

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Ingredients
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Cas: 76-13-1
RTECS #: KJ4000000
Name: 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE
Percent by Wt: 100.
OSHA PEL: 7600 MG/M3;1000 PPM
ACGIH TLV: 7670 MG/M3;1000 PPM
ACGIH STEL: 9590 MG/M3;1250 PPM
Ozone Depleting Chemical: 1

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Health Hazards Data
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LD50 LC50 Mixture: LD50: (ORAL,RAT) 43 GM/KG
Route Of Entry Inds - Inhalation: YES
Skin: YES
Ingestion: YES
Carcinogenicity Inds - NTP: NO
IARC: NO
OSHA: NO
Effects of Exposure: 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON TF):
NARCOTICS/SIMPLE ASPHYXIANT. 4500 PPM IMMED DANGEROUS TO LIFE/HLTH. ACUTE:
MAY CAUSE MILD IRRIT OF MUC MEMB OF UPPER RESP TRACT. MAY BE ANESTH &
CAUSE CNS DEPRESS W/DROW & ARRHYS. HUMANS EXP OSED TO 2500-4500 PPM FOR

30-100 MINS SHOWED SIGNIFICANT IMPAIRMENT OF MANUAL DEXTERITY & VIGILANCE, LOSS OF CONC, SOMNOLENCE & HEAVINESS IN HEAD, WHICH DISAPPEARED 15 MINS AFTER EXPOS ENDED. SIMPLE ASPHYX MAY OCCUR @ HIGH CONCS.OVEREXP COULD RSLT IN EPINEPHINE SENSITIZ OF HEART & SUBSEQUENTLY MAY CAUSE DEATH FROM VENTRICULAR FIBRILLATION UNDER (EFTS OF OVEREXP)
Signs And Symptions Of Overexposure: HLTH HAZS: PHYSICAL/EMOTIONAL STRESS. DOGS EXPOSED TO 11,000-13,000 PPM FOR 6 HRS EXPERIENCED VOMIT, LETHARGY, NERVOUSNESS, & TREMORS. ALL SYMPS WERE REVERSIBLE W/IN 15 MINS. IN EXPERIMENTAL ANIMALS, VARIABLE DEGREES OF CARDIODYNAMIC EFTS T HAT INCL TACHYCARDIA, MYOCARDIAL DEPRESS, & HYPOTENSION HAVE BEEN REPORTED. PULM EDEMA & SEV VENTRICULAR DYSRHYTHMIA MAY RSLT FROM INHAL OF FREONS. CHLOROFLUOROCARBON (CFC) MATLS HAVE PRDCED SENSITIZ OF MYOCARDIUM TO EPINEPHRINE IN LAB ANIMALS & COULD HAV SIMILAR EFT IN HUMANS. ADRENOMIMETICS (I.E., EPINEPHRINE) (SUPDAT)

Medical Cond Aggravated By Exposure: PERSONS WITH PRE-EXISTING SKIN DISORDERS,IMPAIRED CARDIOVASCULAR FUNCTION, PARTICULARLY CARDIAC ARRYTHMIAS OR IMPAIRED RESPIRATORY FUNCTION.

First Aid: INHAL: REMOVE TO FRESH AIR IMMED. PERFORM ARTF RESP IF NEC. KEEP PERSON WARM & AT REST. TREAT SYMPTOMATICALLY & SUPPORTIVELY. GET MED ATTN IMMED. SKIN: REMOVE CONTAMD CLTHG & SHOES IMMED. WASH W/SOAP OR MILD DETERGENT & LG AMTS OF WATER UNT IL NO EVID OF CHEM REMAINS (@ LST 15-20 MINS). GET MED ATTN IMMED. EYES: WASH IMMED W/LG AMTS OF WATER/NORMAL SALINE, OCCASNLY LIFTING UPPER & LOWER LIDS, UNTIL NO EVID OF CHEM REMAINS(@ LST 15 MINS). GET MED ATTN IMMED. INGEST: IF VOMIT O CCURS, KEEP HEAD LOWER THAN HIPS TO HELP PVNT ASPIR. TREAT SYMPTOMATICALLY (TRANSPORT INFO)

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Handling and Disposal
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Spill Release Procedures: OCCUPATIONAL SPILL: STOP LEAK IF YOU CAN DO IT W/OUT RISK. FOR SMALL SPILLS, TAKE UP W/SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CLEAN, DRY CONTAINERS FOR LATER DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY.ISOLATE HAZARD AREA AND DENY ENTR Y.

Waste Disposal Methods: OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE.

Handling And Storage Precautions: STORE AWAY FROM INCOMPATIBLE SUBSTANCES. KEEP IN A TIGHTLY CLOSED CONTAINER. STORE IN A COOL, DRY, VENTILATED AREA. OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING THIS SUBSTANCE.

Other Precautions: NO SMOKING IN AREA OF USE. DO NOT USE IN GENERALVICINITY OF ARC WELDING, OPEN FLAMES OR HOT SURFACES. HEAT AND/OR UVRADIATION MAY CAUSE FORMATION OF CHLORIDES, FLUORIDES AND PHOSGENE (FP N).

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Fire and Explosion Hazard Information
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Autoignition Temp: =680.C, 1256.F

Extinguishing Media: DRY CHEM, CO&2, WATER SPRAY/REGULAR FOAM. FOR LGR FIRES, USE WATER SPRAY, FOG/ REGULAR FOAM. (1993 EMERG RESPONSE GUIDEBOOK, RSPA P 5800.6). USE AGENTS SUITABLE FOR (TRANSPORT INFO)

Fire Fighting Procedures: WEAR NIOSH APPRVD PRESSURE DEMAND SCBA & FULL PROTECTIVE EQUIPMENT (FP N). MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT W/OUT RISK. DO NOT SCATTER SPILLED MATL W/HIGH-PRESSURE WATER STREAMS. DIKE FIRE-CONTROL WATER FOR LATER DISP (1993 EM ER RESPONSE GUDEBOOK, RSPA P 5800.6, GUIDE PG 31).

Unusual Fire/Explosion Hazard: NEGLIGIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAMES. THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE CHLORIDES, FLUORIDES & PHOSGENE (FP N).

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Control Measures
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Respiratory Protection: FOLLOWING RESPS & MAX USE CONCS ARE REC BY U.S.

DEPT OF HLTH & HUMAN SERVICES, NIOSH POCKET GUIDE TO CHEM HAZS; NIOSH CRITERIA DOCUMENTS/BY U.S. DEPT OF LABOR, 29 CFR 1910 SUBPART 2. SPECIFIC RESP SELECTED MUST BE BASED ON CONTAM LEVS FOUND IN WORKPLACE, MUST NOT EXCEED WORKING LIMS OF RESP & BE APPRVD BY NIOSH. 4500 PPM - ANY NIOSH APPRVD (TRANSPORT INFO)

Ventilation: PROVIDE GENERAL DILUTION VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS.

Protective Gloves: IMPERVIOUS GLOVES (FP N).

Eye Protection: ANSI APPROVED CHEMICAL WORKERS GOGGLES (FP N).

Other Protective Equipment: EYE WASH & DELUGE SHOWER MEETING ANSI DESIGN CRITERIA (FP N). EMPLOYEE MUST WEAR APPROP PROT (IMPERVIOUS) CLTHG & EQUIP TO PVNT RPTD/PRLNGD SKIN CONT W/THIS SUBSTANCE.

Supplemental Safety and Health: EFTS OF OVEREXP: MAY BE CONTRA-INDICATED EXCEPT FOR LIFE-SUSTAINING USES IN HUMANS ACUTELY/CHRONICALLY EXPOSED TO CFC'S (FP N). CHRONIC: PRLNGD HUMAN EXPOS FOR 2 WKS @ CONCS OF APPROX 500 & 1000 PPM CAUSED MILD THROAT IRRIT ON 1ST DAY, BUT NO DECREMENT IN PERFORMANCE OF COMPLEX MENTAL TASKS. (OTHER INFO)

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Physical/Chemical Properties
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Boiling Point: =45.8C, 114.4F

Melt/Freeze Pt: =13.2C, 55.8F

Vapor Pres: 284 MMHG @ 20C

Vapor Density: 6 (APPROX)

Spec Gravity: 1.6 @ 77F

Evaporation Rate & Reference: 0.45 (ACETONE =1)

Solubility in Water: 0.028%

Appearance and Odor: COLORLESS LIQUID WITH AN ODOR LIKE AMMONIA AT HIGH CONCENTRATIONS.

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Reactivity Data
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Stability Indicator: YES

Stability Condition To Avoid: STABLE UNDER NORMAL TEMPS & PRESSURES. MAY BURN BUT DOES NOT IGNITE READILY. AVOID CONTACT WITH STRONG OXIDIZERS, EXCESSIVE HEAT, SPARKS, OR OPEN FLAME.

Materials To Avoid: ALKALI METALS: VIOLENT RXN POSS. ALUMINUM (POWDERED): FORMS SHOCK-SENSITIVE MIX. BARIUM (POWDERED): FORMS EXPLO MIX. BERYLLIUM & CALCIUM: VIOLENT RXN POSS. LITHIUM (POWDERED): FORMS (STATE REGULATORY INFO)

Hazardous Decomposition Products: THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC AND CORROSIVE FUMES OF CHLORIDES AND FLUORIDES, AND TOXIC OXIDES OF CARBON. PHOSGENE (FP N).

Hazardous Polymerization Indicator: NO

Conditions To Avoid Polymerization: HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

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Toxicological Information
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Toxicological Information: IRRIT DATA: 500 MG OPEN SKIN-RABBIT MILD; 500 MG/24 HRS SKIN-RABBIT MILD. TOXICITY DATA: 87000 PPM/6 HRS INHAL-RAT LCLO: 25 PPH/90 SECONDS INHAL-MOUSE LCLO; 20 PPH/6 HRS/2 YRS-INTERMITTENT INHAL-RAT TCLO: 43 GM/KG ORAL-RAT LD50: CARCINOGEN STATUS: NONE. ACUTE TOX

LEVEL: RELATIVELY NON-TOXIC BY INHAL & INGEST. TARGET EFTS: CNS DEPRESSANT; SIMPLE ASPHY. POISONING MAY ALSO AFFECT LIVER & KIDNEYS. ADDITIONAL DATA: STIMULANTS SUCH AS EPINEPHRINE MAY INDUCE VENTRICULAR FIBRILLATI ON.

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Ecological Information
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Ecological: N/P -OTHER INFO: 5 GM/KG W/RABBIT SKIN FOR 5 SUCCESSIVE DAYS RSLTD IN LOC NECROSIS & SLOUGHING PLUS CONSPICUOUS ENLARGEMENT OF LIVER CELLS.EYE CONT: ACUTE: MAY CAUSE IRRIT. APPLIC OF 0.1 ML TO RABBIT EYES IS REPORTED TO HAVE PRDCED ONLY MI LD CONJ & MINIMAL CORNEAL DULLNESS @ 24 HRS. ALL EYES RETURNED TO NORMAL W/IN 48 HRS. CHRONIC: NO DATA AVAIL. INGEST:NARCOTIC. ACUTE: ONE HUMAN ACCIDENTALLY RECEIVED 1 LITER OF 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE IN STOM WHILE UNDER ANEST H. THIS PRDCED IMMED BUT TRANSIENT CYANOSIS. INDIVIDUAL SURVIVED & RPTD ONLY SEV RECTAL IRRIT & DIARR FOR 3 DAYS THEREAFTER. (TRANSPORT INFO)

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MSDS Transport Information
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Transport Information: N/P -ECOLOGICAL INFO: IF SUFFICIENT AMTS ARE INGESTED, SYSTEMIC TOX MAY OCCUR AS DETAILED IN ACUTE INHAL. INGEST OF HYDROCARBONS IS ASSOC W/PNEUM, CNS DEPRESS & ARRHY. CHRONIC: NO CHANGES WERE PRDCED IN OFFSPRING OF PREGNANT RABBITS EXPOS ED ORALLY. FIRST AID PROC: & SUPPORTIVELY. GET MED ATTN IF NEEDED. ANTIDOTE: NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY & SUPPORTIVELY. EXTING MEDIA: TYPE OF SURROUNDING FIRE. AVOID BRTHG HAZ VAPS, KEEP UPWIND. RESP PROT: SUPPLIED-AIR RES P. ANY NIOSH APPRVD SCBA. ESCAPE-ANY NIOSH APPRVD AIR-PURIFYING FULL FACEPIECE RESP (GAS MASK) (FED REGULATORY INFO)

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Regulatory Information
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Sara Title III Information: SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING. COMPONENTS AND CONTAMINANTS. EXPOSURE LIMITS: 1000 PPM (7670 MG/M3) OSHA TWA; 1250 PPM (9590 MG/M3) OSHA STEL. 1000 PPM (7670 MG/M3) ACGIH TWA; 1250 PPM (9590 MG/M3) ACGIH STEL. 1000 PPM (7670 MG/M3) NIOSH REC TWA; 1250 PPM (9590 MG/M3) NIOSH REC STEL. 500 PPM (3832 MG/M3) DFG MAK TWA;1000 PPM (7670 MG/M3) DFG MAK 60 MIN PEAK, MOMENTARY VALUE, 3 TIMES/SHIFT. MEASUREMENT METH: CHARCOAL TUBE; CARBON DISULFIDE ; GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION; (NIOSH. VOL. III # 1020).

Federal Regulatory Information: OSHA REVOKED THE FINAL RULE LIMIT OF JANUARY 19, 1989 IN RESPONSE TO THE 11TH CIRCUIT COURT OF APPEALS DECISION (AFL CIO V. OSHA). EFFECTIVE (CONT NEHC FOR COMPLETE INFO). --

TRANSPORT INFO: WITH NIOSH APPRVD CHIN STYLE/FRON T OR BACK-MOUNTED ORG VAP CANISTER. ANY APPROP ESCAPE-TYPE NIOSH APPRVD SCBA. FOR FIREFIGHTING & OTHER IMMED DANGEROUS TO LIFE/HLTH CNDTNS: ANY NIOSH APPRVD SCBA THAT HAS FULL FACEPIECE & IS OPERATED IN PRESS-DEMAND/OTHER POS-PRESS MODE. AN Y NIOSH APPRVD SUPPLIED-AIR RESP THAT HAS A FULL FACEPIECE & IS OPERATED IN PRESS-DEMAND OR OTHER POS-PRESS MODE (STATE REGULATORY INFO)

State Regulatory Information: N/P -FED REGULATORY INFO: IN COMBINATION WITH ANNIOASH APPRVD AUXILIARY SCBA OPERATED IN PRESS-DEMAND OR OTHER POSITIVE-PRESSURE MODE. MATLS TO AVOID: EXPLOSIVE MIX. MAGNESIUM: VIOLENT RXN POSS. MAGNESIUM ALLOY: DECOMP POSS. PLASTICS, RUBBE R, COATINGS: MAY BE ATTACKED. POTASSIUM: FORMS IGNITABLE CMPD. SAMARIUM: EXPLODES ON FRICTION. SODIUM: FORMS IGNITABLE COMPOUND. SODIUM-POTASSIUM ALLOY: VIOLENT EXPLOSION.TITANIUM (POWDERED): FORMS SHOCK-SENSITIVE MIXTURE. ZINC: VIOLENT RE ACTION POSSIBLE.

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Other Information
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Other Information: CERCLA RATINGS (SCALE 0-3): HEALTH=1, FIRE=0,
REACTIVITY=0,
PERSISTENCE=3. NFPA RATINGS (SCALE 0-4): HEALTH=1, FIRE=0, REACTIVITY=0.
SUPDAT: PATHOLOGIC FINDINGS IN RATS INCL VERY SLIGHT DIFFUSE DEGENERATIVE
FATTY INFILTRATION OF LIVER. NO CHANGES WERE PRDCED IN OFFSPRING OF
PREGNANT RABBITS EXPOSED TO 9 DAILY 2 HR EXPOS @ LEVELS AS HIGH AS 20,000
PPM. SKIN CONT: ACUTE: CONT MAY CAUSE IRRIT. CHRONIC: RPTD/PRLNGD CONT MAY
CAUSE DERM W/DRYING & CRACKING. NO EFTS WERE NOTED IN RABBITS AFTER 20 WKS
OF APPLIC TO UNCOVERED SKIN. HOWEVER, OCCLUDED CONT OF (ECOLOGICAL INFO)
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HAZCOM Label

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Product ID: FREON 113
Cage: 1B464
Company Name: FISHER SCIENTIFIC CO. CHEMICAL MFG DIV
Street: 1 REAGENT LANE
City: FAIR LAWN NJ
Zipcode: 07410-2802
Health Emergency Phone: 800-424-9300
Label Required IND: Y
Date Of Label Review: 05/15/2000
Status Code: A
Origination Code: F
Eye Protection IND: YES
Skin Protection IND: YES
Signal Word: WARNING
Respiratory Protection IND: YES
Health Hazard: Moderate
Contact Hazard: Slight
Fire Hazard: Slight
Reactivity Hazard: None
Hazard And Precautions: ACUTE: INHAL OF MIST/VAP MAY CONTRIBUTE TO OCCUR OF
IRREG HEARTBEAT (FP N). MAY CAUSE MILD IRRIT OF MUC MEMB OF UPPER RESP
TRACT.MAY BE ANESTH & CAUSE CNS DEPRESS W/DROW & ARRHYS. HUMANS EXPOSED TO
2500-4500 PPM FOR 30-100 MINS SHOWED SIGN IFICANT IMPAIRMENT OF MANUAL
DEXTERITY & VIGILANCE, LOSS OF CONC, SOMINOLENCE & HEAVINESS IN HEAD,
WHICH DISAPPEARED 15 MINS AFTER EXPOS ENDED. SIMPLE ASPHYXIATION MAY OCCUR
@ HIGH CONCS. OVEREXP COULD RSLT IN EPINEPHRINE SENSITZ OF HEART &
SUBSEQUENTLY MAY CAUSE DEATH FROM VENTRICULAR FIBRILLATION UNDER
PHYS/EMOTIONAL STRESS. CHRONIC: NONE LISTED BY MANUFACTURER (FP N).
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