

VARIAN ASSOCIATES INC -- VDS1082 -- 5960-01-214-0434

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

Product ID:VDS1082
MSDS Date:02/08/1995
FSC:5960
NIIN:01-214-0434
MSDS Number: CDXCJ
=== Responsible Party ===
Company Name:VARIAN ASSOCIATES INC
Address:150 SOHIER RD
City:BEVERLY
State:MA
ZIP:01915-5595
Country:US
Info Phone Num:508-922-6000
Emergency Phone Num:508-922-6000
Preparer's Name:FRANK E TROJAN
CAG
E:88236

=== Contractor Identification ===
Company Name:COMMUNICATIONS AND POWER INDUSTRIES INC
Address:150 SOHIER RD
City:BEVERLY
State:MA
ZIP:01915-5595
Country:US
Phone:978-922-6000 EXT.285
CAGE:88236

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

Ingred Name:TRITIUM
Fraction by Wt: 1%
OSHA PEL:N/K
ACGIH TLV:N/K

Ingred Name:SUPDAT:LIQ CAN REACH SCALDING TEMPS & CAUSE SERIOUS BURNS.
OPERATE @ LETHAL VOLTAGES. MAY CAUSE SEV INJURY. NEVER(ING 3)
RTECS #:9999999ZZ

Ingred Name:ING 2: LOOK INTO OR EXPOSE ANY PART OF THE BODY TO AN ANTENNA OR OPEN WAVEGUIDE. CAPABLE OF PRODUCING X-RAY (ING 4)
RTECS #:9999999ZZ

Ingred Name:ING 3:RADIATION. PROVIDE ADEQUATE X-RAY SHIELDING. CHECK X-RAY LEVELS. GAS DISCHARGE TUBES CAN PRODUCE ULTRA- (ING 5)
RTECS #:9999999ZZ

Ingred Name:ING 4:VIOLET RADIATION. PAINFUL SKIN BURNS CAN RESULT. EYE INJURY COULD BE PERMANENT. MAINTAIN SHIELDING INTACT. (ING 6)
RTECS #:9999999ZZ

Ingred Name:ING 5:AVOID EXPOSURE TO AN ULTRAVIOLET SOURCE. A GLASS TUBE MAY IMplode. FLYING DEBRIS MAY RESULT IN INJURY. (ING 7)
RTECS #:9999999ZZ

Ingred Name:ING 6:AVOID INHALING GAS OR DUST FROM BROKEN TUBES. A RUPTURE OF THE COOLING CHANNEL OR CONTACT WITH HOT PORTIONS(ING 8)
RTECS #:9999999ZZ

Ingred Name:ING 7:OF THE TUBE COULD SCALD OR BURN. LIQUID COOLING MAY LEAVE SURFACES HOT. THESE AREAS CAN BECOME VERY HOT (ING 9)
RTECS #:9999999ZZ

Ingred Name:ING 8:EVEN THOUGH OTHER PARTS OF THE TUBE ARE COOL. HOT SURFACE S MAY REAMIN HOT AFTER THE END OF TUBE OPERATION.(ING 10)
RTECS #:9999999ZZ

Ingred Name:ING 9:AVOID TOUCHING THESE SURFACES DURING & AFTER TUBE OPERATION. MAINTAIN AIR FLOW UNTIL HOT SURFACES HAVE (ING 11)
RTECS #:9999999ZZ

Ingred Name:ING 10:COOLED. FOR MORE SPECIFIC HEALTH HAZARD INFORMATION CONTACT NEHC .
RTECS #:9999999ZZ

Ingred Name:WASTE DISP METH:MANNER & I/A/W FEDERAL, STATE & LOCAL LAWS & REGULATIONS. SAFEGUARD PEOPLE IN DISP OPERATION. (ING 13)
RTECS #:9999999ZZ

Ingred

Name:ING 12:WARN PEOPLE IN ANY POSSIBLE SALVAGE OPERATION.
RTECS #:9999999ZZ

Ingred Name:OTHER PREC:MATCHED RF LOAD. MONITOR TUBE AND SYSTEM FOR RF
RADIATION LEAKAGE AT REGULAR INTERVALS AND AFTER (ING 15)
RTECS #:9999999ZZ

Ingred Name:ING 14:SERVICING. NEVER OPERATE HIGH VOLTAGE TUBES WITHOUT
ADEQUATE X-RAY SHIELDING IN PLACE. MONITOR THE TUBE (ING 16)
RTECS #:9999999ZZ

Ingred Name:ING 15:AND SYSTEM FOR X-RAY RADIATION AT REGULAR INTERVALS
AND AFTER SERVICING. FOR MORE SPECIFIC P
RECAUTIONS (ING 17)
RTECS #:9999999ZZ

Ingred Name:ING 16:CONTACT NEHC .
RTECS #:9999999ZZ

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

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.
Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO
Health Hazards Acute and Chronic:ACUTE:SIGNIFICANT EXPOS TO
RADIONUCLIDE MAY CAUSE CANCER. SIGNS & SYMPS OF EXPOS:TRITIUM IS
BETA EMITTER. IF EXPOS IS SUSPECTED, SEEK MED
ATTN, URINE ASSAY FOR
TRITIUM IS ONLY MEANS OF MEASURING DEGREE OF EXPOS. NORM OPERATING
VOLTAGES CANBE DEADLY. RF RADIA MAY CAUSE SERIOUS BODILY INJURY,
BLNDNESS (EFTS OF OVEREXP)
Explanation of Carcinogenicity:NOT RELEVANT.
Effects of Overexposure:HLTH HAZ:OR DEATH, MAY AFFECT CARD PACEMAKERS.
X-RAY RADIA CAN PRDCE DANGEROUS, POSSIBLY FATAL, X-RAYS. MAY EMIT
IONIZING RADIA. ULTRAVIOLENT RADIA MAY CAUSE PAINFUL SKIN BURNS &
SERIOUS EYE DMG/IRRIT . BERYLLIUM & BERYLLIUM
OXIDE ARE HIGHLY TOX.
MAY CREATE TOX/CORR CMPDS. IMPLOSION HAZ MAY INJURE FROM FLYING
(SUPDAT)
Medical Cond Aggravated by Exposure:HEALING OF DAMAGED TISSUES MAY BE
PROLONGED.

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

First Aid:SKIN CONT:FLUSH WITH WATER FOR 15 MINUTES. EYE CONT:FLUSH
WITH WATER FOR AT LEAST 15 MINUTES. INHALATION:REMOVE TO FRESH AIR.
INGESTION:A HIGH ORAL FLUID INTAKE SHOULD BE ADMINISTERED FOLLOWING
TRITIU M EXPOSURE.

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

Extinguishing Media:NOT APPLICABLE. MEDIA SUITABLE FOR SURROUNDING FIRE

Fire Fighting Procedures:NOT APPLICABLE. USE NIOSH APPROVED SCBA & FULL PROTECTIVE EQUIPMENT .

Unusual Fire/Explosion Hazard:NOT APPLICABLE.

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

Spill Release Procedures:TUBES ARE SEALED SOURCES & NORM HNDLG DOES NOT PRESENT RADIA PROBLEM. WHEN HNDLG BROKEN TUBES WEAR PROT RUBB

GLOVES & CLTHG. AVOID POSSIBILITY OF RUBBING RADIOACTIVE MATL ONTO SKIN. WASH EXPOS SKIN AF TER HNDLG BROKEN TUBES CNTNG RADIOACTIVE MATL.

Neutralizing Agent:NOT APPLICABLE.

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

Handling and Storage Precautions:PVNT CONT W/HIGH VOLTAGES. ATTACH HAZ WARNINGS. BREAK PRIMARY CIRCUITS OF POWER SUPPLY & DISCHARGE HIGH VOLTAGE CAPACITORS. MINIMIZE EXPOSURE.

Other Precautions:DO NOT PERMIT IN VICIN OF OPEN ENERGIZED

WAVEGUIDES/ENERGIZED ANTENNAS. OCCUP SFTY & HLTH ADMIN (OSHA) RULES LIMIT EXPOS TO RF RADIA. ALL CONNECTIONS, WAVEGUIDES, FLANGES, & GASKETS MUST BE RF LEAKPRO OF. NEVER OPERATE W/OUT PROPERLY(ING 14)

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

Respiratory Protection:IF SPILLED, WEAR NIOSH APPRVD RADIONUCLIDE CARTRIDGE RESPIRATOR.

Ventilation:PLACE AFFECTED COMPONENT IN LOCAL EXHAUST.

Protective Gloves:DISPOSABLE GLOVES.

Eye Protection:ANSI APPRVD CHEM WORKE RS GOGGLES .

Other Protective Equipment:ANSI APPRVD EYE WASH & DELUGE SHOWER .

Work Hygienic Practices:WASH HANDS.

Supplemental Safety and Health

HAZ DECOMP PRODS:WHICH MAY FORM PHOSGENE; SULFUR HEXAFLOURIDE SF*6) GAS MAY FORM SULFUR/FLOURINE CMPDS. WHEN BREAKDOWN DOES OCCUR IN PRESENCE OF THESE GASES, TAKE PROPER PREC. AVOID INHALING GASES FRO M THESE SYS. AVOID TOUCHING LIQS FROM THESE SYS. EFTS OF OVEREXP:PARTICLES/FROM BERYLLIUM OXIDE DUST/FUMES. HOT (ING 2)

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== Physical/Chemical Properties =====

HCC:A3

Boiling Pt:B.P. Text:-414F,-248C

Melt/Freeze Pt:M.P/F.P Text:-425F,-254C

Vapor Pres:18.317

Spec Gravity:6.0

Solubility in Water:100%

Appearance and Odor:GAS, NO ODOR.

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

Stability Indicator/Materials to Avoid:YES

OXIDIZERS.

Stability Condition to Avoid:TEMPS IN EXCESS OF 400C WILL CAUSE DECOMP
OF TIT*2 W/RELEASE OF TRITIUM GAS.

Hazardous Decomposition Products:DIELE

CTRIC GAS:IF BREAKDOWN DOES

OCCUR, GAS MAY DECOMPOSE & FORM HIGHLY TOX & CORR CMDPS. FOR
EXAMPLE, FREON GAS(SUPDAT)

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

Waste Disposal Methods:DISP MUST BE I/A/W FED, STATE & LOC REGS . AVOID
INHAL GASES FROM BROKEN TUBES CONTAINING TRITIUM. DISPOSE OF
BROKEN/SPENT TUBES AS SPECIFIED IN 10 CFR, PART 20 & 10 CFR, PART
30. DISP OF TUBES CONTAINING BERYLLIUM MUST BE DONE IN SAFE(ING
12)

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