AIR PRODUCTS AND CHEMICALS INC -- HELIUM, OR LIQUID HELIUM -- 6830-01-008-3431

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

Product ID:HELIUM, OR LIQUID HELIUM
MSDS Date:06/01/1990
FSC:6830
NIIN:01-008-3431
MSDS Number: BGCYF
=== Responsible Party ===
Company Name:AIR PRODUCTS AND CHEMICALS INC
Address:7201 HAMILTON BLVD
Box:538
City:ALLENTOWN
State:PA
ZIP:18195-1501
Country:US
Info Phone Num:215-481-6311
E
mergency Phone Num:800-523-9374
CAGE:00742
=== Contractor Identification ===
Company Name:AIR PRODUCTS AND CHEMICALS INC
Address:7201 HAMILTON BLVD
Box:City:ALLENTOWN
State:PA
ZIP:18195-1501
Country:US
Phone:800-345-3148/ 800-752-1597
CAGE:00742

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

Ingred Name:HELIUM; (INERT GAS)
CAS:7440-59-7
RTECS #:MH6520000
OSHA PEL:N/K
ACGIH TLV:N/K

Ingred Name:SUPDAT:TO AIR PRODS W/RESIDUAL PRESS, CYL VALVE TIGHTLY CLSD & VALVE CAP

IN PLACE.
RTECS #:9999999ZZ

Ingred Name:OTHER PREC:FLOW INTO STOR CNTNR. AVOID DRAGGING, ROLLING/SLIDING CYLS, EVEN FOR SHORT DIST. USE SUITABLE HAND (ING 4)
RTECS #:9999999ZZ

Ingred Name:ING 3:TRUCK. FOR ADDNL HNDLG REC ON COMPRESSED GAS CYLS, CONSULT COMPRESSED GAS ASSOC PAMPHLET P-1. STORE LIQ (ING 5)
RTECS #:9999999ZZ

Ingred Name:ING 4:CNTNRS & CYLS IN WELL-VENT AREAS. KEEP CYLS AWAY FROM SOURCES OF HEAT. STOR SHOULD NOT BE IN HEAVY TRAFFIC (ING 6)
RTECS #:9999999ZZ

Ingre
d Name:ING 5:AREAS TO PVNT ACCIDENTAL KNOCKING OVER/DMG FROM PASSING/FALLING OBJECTS. VALVE CAPS SHOULD REMAIN ON CYLS (ING 7)
RTECS #:9999999ZZ

Ingred Name:ING 6:NOT CONNECTED FOR USE. SEGREGATE FULL & EMPTY CYLS. STOR AREAS SHOULD BE FREE OF COMBUST MATL. AVOID EXPOS (ING 8)
RTECS #:9999999ZZ

Ingred Name:ING 7:TO AREAS WHERE SALT/CORR CHEMS ARE PRESENT. GASEOUS HELIUM CNTNRS MEET DOT SPECIFICATION/AMERICAN SOCIETY (ING 9)
RTECS #:9999999ZZ

Ingred Name:ING 8:OF MECHANICAL ENGINEE
RS (ASME) CODES. LIQ HELIUM IS STORED IN VACUUM-INSULATED CNTNRS MEETING DOT (ING 10)
RTECS #:9999999ZZ

Ingred Name:ING 9:SPECIFICATIONS/ASME CODES. LIQ HELIUM IN EXPOS PIPING CAN ACTUALLY CAUSE AIR TO CONDENSE & LIQUEFY. (ING 11)
RTECS #:9999999ZZ

Ingred Name:ING 10:NITROGEN IN THIS LIQ CAN EVAP MORE RAPIDLY, LEAVING OXYG ENRICHED LIQ BEHIND. UTILIZE OXYG-COMPAT (ING 12)
RTECS #:9999999ZZ

Ingred Name:ING 11:INSULATING MATLS & MINIMIZE EXPOS PIPING SURF AREAS. USE ONLY METALS

& MATLS COMPAT W/EXTREMELY LOW TEMP.(ING 13)
RTECS #:9999999ZZ

Ingred Name:ING 12:AVOID USE OF CARBON STEEL & OTHER METALS WHICH BECOME BRITTLE @ LOW TEMPS. COMPRESSED GAS CYLS SHOULD NOT(ING 14)
RTECS #:9999999ZZ

Ingred Name:ING 13:BE REFILLED EXCEPT BY QUALIFIED PRODUCERS OF COMPRESSED GASES. SHIPMENT OF COMPRESSED GAS CYL FILLED (ING 15)
RTECS #:9999999ZZ

Ingred Name:ING 14:W/OUT PERMISSION OF OWNER IS VIOLATION OF FEDERAL LAW. IF OXYG DEFICIENT ATM ARE SUSPECTED/CAN OCCUR, (IN
G 16)
RTECS #:9999999ZZ

Ingred Name:ING 15:USE OXYG MONITORING EQUIP TO TEST FOR OXYG DEFICIENT ATM.
RTECS #:9999999ZZ

Ingred Name:VENT:NORMAL CONCENTRATION OF HELIUM IN WORK AREAS.
RTECS #:9999999ZZ

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

LD50 LC50 Mixture:NONE SPECIFIED BY MANUFACTURER.
Routes of Entry: Inhalation:YES Skin:NO Ingestion:YES
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO
Health Hazards Acute and Chronic:HELIUM IS NONTOXIC, BUT CAN ACT
AS
SIMPLE ASPHYXIANT BY DISPLACING AMT OF OXYG IN AIR NEC TO SUPPORT LIFE. HELIUM IS ODORLESS & NONTOXIC, BUT MAY PRDCE SUFFOCATION BY DILUTING CONC OF OXYG IN AIR BELO W LEVELS NEC TO SUPPORT LIFE. PERS, INCLUDING RESCUE WORKERS, SHOULD NOT ENTER AREAS WHERE OXYG CONC IS(EFTS OF OVEREXP)
Explanation of Carcinogenicity:NOT RELEVANT.
Effects of Overexposure:HLTH HAZ:BELOW 19.5%, UNLESS PROVIDED W/SCBA/AIRLINE RESP. EXPOS TO OXYG-DEFICIENT ATMOSPHERES MAY PRDCE DIZZ, N
AUS, VOMIT, LOSS OF CONSCIOUSNESS, & DEATH. DEATH MAY RSLT FROM ERRORS IN JUDGMENT, CONF USION/LOSS OF CONSCIOUSNESS WHICH PVNTSSELF-RESCUE. AT LOW OXYG CONCS UNCONSCIOUSNESS & DEATH MAY OCCUR IN (SUPDAT)
Medical Cond Aggravated by Exposure:NONE SPECIFIED BY MANUFACTURER.

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

First Aid:INGEST:CALL MD IMMEDIATELY . PERSONS SUFFERING FROM LACK OF OXYG SHOULD BE MOVED TO AREAS W/NORM ATMOSPHERES. SCBA MAY BE REQD

TO PVNT ASPHY OF RESCUE WORKERS. ASSISTED RESP & SUPP OXYG SHOULD B E GIVEN IF VICTIM IS NOT BRTHG. IF CRYOGENIC LIQ/COLD BOIL-OFF GAS CONTACTS WORKER'S SKIN/EYES, FROZEN TISS SHOULD BE FLOODED/SOAKED W/TEPID WATER (105-115F; 41-46C). DO NOT USE HOT WATER. (SUPDAT)

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

Extinguishing Media:NOT APPLICABLE. MEDIA SUITABLE FOR SURROUNDING FIRE .
Fire Fighting Procedures:NOT APPLICABLE. USE NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT .
Unusual Fire/Explosion Hazard:CYLINDER(S) EXPOSED TO INTENSE HEAT OR FIRE MAY VENT RAPIDLY OR EXPLODE.

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

Spill Release Procedures:AVOID SKIN CONTACT WITH LIQUID OR COLD BOIL-OFF GAS. FLUSH LIQUID SPILL WITH WATER TO DISPERSE. VENTILATE ENCLOSED AREAS TO PREVENT FORMATION OF OXYGEN-DEFICIENT ATMOSPHERES CAUSED BY EVAPORATION OF L IQUID HELIUM OR THE RELEASE OF GASEOUS HELIUM.
Ne
utralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:PVNT CONT OF LIQ HELIUM/COLD BOIL-OFF GAS W/EXPOSED SKIN. PVNT ENTRAPMENT OF LIQ IN CLSD SYS. USE ONLY IN WELL-VENTILATED AREAS.
Other Precautions:COMPRESSED GAS CYLS CONTAIN HELIUM AT EXTREMELY HIGH PRESS & SHOULD BE HANDLED W/CARE. USE A PRESS-REDUCING REGULATOR WHEN CONNECTING TO LOWER PRESS PIPING SYS. SECURE CYLS WHEN IN USE.

NEVER USE DIRE CT FLAME TO HEAT A COMPRESSED (ING 2)

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

Respiratory Protection:NIOSH/MSHA APPRVD SCBA IN OXYG-DEFICIENT ATMOSPHERES. CAUTION! AIR PURIFYING RESPIRATORS WILL NOT FUNCTION. THEIR USE MAY RESULT IN ASPHYXIATION.
Ventilation:NATRL/MECH WHERE GAS IS PRESENT. LOC/MECH (GEN):AS NEC. VENTS SHOULD BE SITUATED TO AVOID HIGHER THAN NORM CONC (ING 17)
Protective Gloves:LEATHER
Eye Protection:CHEM GOGGLES & FA

CESHIELD.
Other Protective Equipment:NONE
Work Hygienic Practices:NONE SPECIFIED BY MANUFACTURER.
Supplemental Safety and Health
EFTS OF OVEREXP:SECS W/OUT WARNING. EXTENSIVE TISS DMG/BURNS CAN RSLT FROM EXPOS TO LIQ HELIUM/COLD HELIUM VAPS. FIRST AID PROC:CRYOGENIC BURNS WHICH RSLT IN BLISTERING/DEEPER TISS FREEZING SHOULD BE SEEN PROMPTLY BY PHYS. WASTE DISP METH:TO AIR PRODS W/RESIDUAL PRESS, THE CYL VALVE TIGHTLY CLSD & VALVE CAP IN PLACE.

========== Physical/Chemi
cal Properties ==========

Boiling Pt:B.P. Text:-452F,-269C
Melt/Freeze Pt:M.P/F.P Text:-458F,-272C
Vapor Density:0.0114@32F
Spec Gravity:0.138 @ 32F
Evaporation Rate & Reference:NOT KNOWN
Solubility in Water:0.861% @ 68F
Appearance and Odor:HELIUM IS COLORLESS AND ODORLESS IN BOTH GASEOUS AND LIQUID STATES.

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

Stability Indicator/Materials to Avoid:YES
NONE.
Stability Condition to Avoid:NONE.
Hazardous Decomposi
tion Products:NONE

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

Waste Disposal Methods:ALLOW LIQ HELIUM TO EVAP IN WELL-VENTILATED LOCATION REMOTE FROM WORK AREAS. VENT HELIUM GAS SLOWLY TO WELL-VENTILATED OUTDOOR LOCATION REMOTE FROM WORK AREAS. DO NOT ATTEMPT TO DISPOSE OF RESIDUAL HE LIUM IN COMPRESSED GAS CYLS. RETURN CYLS (SUPDAT)

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