AIRGAS INC -- CARBON DIOXIDE -- 6830-01-165-6174

Product ID: CARBON DIOXIDE
MSDS Date: 10/31/1996
FSC: 6830
NIIN: 01-165-6174
MSDS Number: CHCBV

=== Responsible Party ===
Company Name: AIRGAS INC
Address: 259 RADNOR-CHESTER RD
City: RADNOR
State: PA
ZIP: 19087-5240
Country: US
Info Phone Num: 610-687-5253
Emergency Phone Num: 800-424-9300 (CHEMTREC)
CAGE: J0188

=== Contractor Identification ===
Company Name: AIRGAS INC
Address: 100 MATSONFORD RD SUITE 550
Box: City: WAYNE
State: PA
ZIP: 19087
Country: US
Phone: 215-687-5253
CAGE: OMN39
Company Name: AIRGAS INC
Address: 100 MATSONFORD RD
Box: City: RADNOR
State: PA
ZIP: 19087
Country: US
Phone: 610-687-5253; 610-687-5253
CAGE: J0188

Composition/Information on Ingredients

Ingred Name: CARBON DIOXIDE
CAS: 124-38-9
RTECS #: FF6400000
Fraction by Wt: >99.8%
OSHA PEL: 5000 PPM
ACGIH TLV: 5000 PPM/30000 STEL

Ingred Name: IMPURITIES; (MAXIMUM IMPURITIES)
Fraction by Wt: <0.2%
OSHA PEL: N/K
ACGIH TLV: N/K

Ingred Name: SUP DAT: W/MOISTURE, CESIUM OXIDE IGNITES O.I CONT W/CARBON DIOXIDE. METAL ACETYLIDES/HYDRIDES WILL ALSO IGNITE/EXPLODE.
RTECS #: 99999999Z

Ingred Name: EFTS OF OVEREXP: AT CONCS 2-10%, CARBON DIOXIDE CAN CAUSE NAUS, DIZZ, HDCH, MENTAL CONFUSION, INCRED BLOOD PRESS (ING 5)
RTECS #: 9999999ZZ

Ingred Name: ING 4: & RESP RATE. CONT W/LIQ/RAPIDLY EXPANDING GASES MAY CAUSE FROSTBT. SYMPS OF FROSTBT CHANGE IN SKIN COLOR (ING 6) RTECS #: 9999999ZZ

Ingred Name: ING 5: TO WHITE/GRAYISH-YELLOW. PAIN AFTER CONT CAN QUICKLY SUBSIDE. MOISTURE IN AIR COULD LEAD TO FORM OF (ING 7) RTECS #: 9999999ZZ

Ingred Name: ING 6: CARBONIC ACID, WHICH CAN BE IRRIT TO EYES. SYMPS OF OXYGEN-DEFICIENCY ARE THOSE WHICH PRECEDE ASPHYXIA, (ING 8) RTECS #: 9999999ZZ

Ingred Name: ING 7: NAMELY, RESP DFCLTY, RINGING IN EARS, HDCH, SHORTNESS OF BREATH, WHEEZING, DIZZ, INDIGESTION, NAUS, &. (ING 9) RTECS #: 9999999ZZ

Ingred Name: ING 8: AT HIGH CONCS, UNCON/DEATH MAY OCCUR. SKIN MAY HAVE BLUE COLOR. CONT MAY CAUSE FROSTBT. SYMPS OF FROSTBT (ING 10) RTECS #: 9999999ZZ

Ingred Name: ING 9: INCL CHANGE IN SKIN COLOR TO WHITE/GRAYISH-YELLOW; EYE IRRIT, PERI TISS D MG. CONT NEHC FOR MORE INFO . RTECS #: 9999999ZZ

Ingred Name: FIRST AID PROC: WRAP AFFECTED PARTS GENTLY IN BLANKETS. ALTERNATIVELY, IF FINGERS/HANDS ARE FROSTBITTEN, PLACE (ING 12) RTECS #: 9999999ZZ

Ingred Name: ING 11: AFFECTED AREA IN ARMPIT. ENCOURAGE VICTIM TO GENTLY EXERCISE AFFECTED PART WHILE BEING WARMED. SEEK (ING 13) RTECS #: 9999999ZZ

Ingred Name: ING 12: IMMED MED ATTN. VICTIMS MUST BE TAKEN TO MED ATTN. RESCUERS SHOULD BE TAKEN TO MED ATTN, IF NEC. TAKE (ING 14) RTECS #: 9999999ZZ

Ingred Name: ING 13: COPY OF LABEL & MSDS TO MD/OTHER HLTH PROFESSIONAL W/VISTIMS. EYES: FLUSH W/POTABLE WATER FOR AT LEAST (ING 15) RTECS #: 9999999ZZ

Ingred Name: ING 14: 15 MINUTES. SEE MD . INGESTION: CALL MD IMMEDIATELY . RTECS #: 9999999ZZ

Ingred Name: SPILL PROC: ATM MUST HAVE AT LEAST 19.5% OXYGEN BEFORE PERS CAN BE ALLOWED IN AREA W/OUT NIOSH APPRVD SCBA. (ING 17) RTECS #: 9999999ZZ

Ingred Name: ING 16: ATTEMPT TO CLOSE MAIN SOURCE VALVE PRIOR TO ENTERING AREA. IF THIS DOES NOT STOP RELEASE (OR IF IT IS (ING 18) RTECS #: 9999999ZZ

Ingred Name: ING 17: NOT POSS TO REACH VALVE), ALLOW GAS TO RELEASE IN-PLACE/REMOVE IT TO SAFE AREA & ALLOW GAS TO BE (ING 19) RTECS #: 9999999ZZ
INGRED NAME: HYDROGEN PRACTICES: EXPOSURES TO FATAL CONCENTRATIONS OF PRODUCT COULD OCCUR WITHOUT ANY SIGNIFICANT WARNING SYMPTOMS.
RTECS #: 999999992Z

INGRED NAME: OTHER PREC: THAT CARBON DIOXIDE VAP FROM SUBLIMATION OF SOLID MAY BE ALLOWED TO ESCAPE INTO ATM. INSULATED STOR (ING 22)
RTECS #: 999999992Z

INGRED NAME: CONVR SHOULD BE LOCATED IN AREA WHERE THERE IS ADEQ VENT AS TO PVNT ACCUM OF CARBON DIOXIDE VAP FROM (ING 23)
RTECS #: 999999992Z

INGRED NAME: TWA. PROTECT CYLS AGAINST PHYSICAL DMG. STORE IN COOL, DRY, WELL-VENTILATED, FIREPROOF AREA, AWAY FROM (ING 24)
RTECS #: 999999992Z

INGRED NAME: FLAM MATS & CORR ATM. STORE AWAY FROM HEAT & IGNIT SOURCES & OUT OF DIRECT SUNLIGHT. DO NOT STORE NEAR (ING 25)
RTECS #: 999999992Z

INGRED NAME: ELEVATORS, CORRIDORS/LOADING DOCKS. STORE CYLS IN TEMPS NOT EXCEEDING 51C (125F). CONT NEHC FOR MORE INFO.
RTECS #: 999999992Z

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: INHAL: HIGH CONCS CAN CAUSE OXYGEN-DEFICIENT ENVIRON. PERS BRTGH SUCH ATM MAY EXPERIENCE SYMPS WHICH INCL HDCH, RINGING IN EARS, DIZZ, SHORTNESS OF BREATH, DROW, UNCON, NAUS, VOMIT & DEPRESS OF ALL SENSES. DEATH MAY OCCUR. EPTS ASSOC W/VARIOUS LEVELS OF OXYGEN ARE: 12-16% OXYGEN: BRTGH & PULSE (EPTS OF OVEREX?)
Explanation of Carcinogenicity: NOT RELEVANT.
Effects of Overexposure: HLTH HAZ: RATE INCRD, MUSC COORD SLIGHTLY DISTURBED; 10-14% OXYGEN: EMOTIONAL UPSET, ABNORM FATG, DISTURBED RESP; 6-10% OXYGEN: NAUS & VOMIT, COLLAPSE/LOSS OF CONSCIOUSNESS; <6%: CONVULSIVE MOVEMENTS, POSS RESP COLLAPSE, DEATH. IF CONC OF CARBON DIOXIDE REACHES 10% OR MORE, SUFFOCATION CAN OCCUR W/N MIN. (ING 4)
Medical Cond Aggravated by Exposure: NONE SPECIFIED BY MANUFACTURER.

First Aid Measures

First Aid: RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS W/OUT ADEQ PERS PROT EQUIP. AT MIN, WEAR NIOSH APPRVD SCBA & PERS PROT EQUIP. INHAL: REMOVE TO FRESH AIR, AS QUICKLY AS POSS. TRAINED PERS SHOULD ADMIN SUPP OXYGEN &/OR CPR. IF NEC. ONLY TRAINED PERS SHOULD ADMIN SUPP OXYGEN. SKIN: PLACE FROSTBITTEN SKIN IN WARM WATER. DO NOT USE HOT WATER. IF WARM WATER IS NOT AVAL/IS IMPRACTICAL TO USE, (ING
Extinguishing Media: CARBON DIOXIDE IS COMMONLY USED AS EXTING AGENCY, & THEREFORE, SHOULD NOT PRESENT PROBLEM WHEN TRYING TO CTL A (SUP DAT)

Fire Fighting Procedures: WEAR NIOSH APPROVED SCBA AND FULL PROTECTIVE EQUIPMENT.

Unusual Fire/Explosion Hazard: CARBON DIOXIDE DOES NOT BURN; HOWEVER, CONTRS, WHEN INVOLVED IN FIRE, MAY RUPTURE/BURST IN HEAT OF FIRE. DUSTS OF VARIOUS REACTIVE METALS (E.G., (SUP DAT)

Spill Release Procedures: RESPOND TO BY TRAINED PERS USING PRE-PLANNED PROC. USE PROPER PROT EQUIP. CLEAR AFFECTED AREA, PROTECT PEOPLE. LOCATE & SEAL SOURCE OF LEAKING GAS. ALLOW GAS, WHICH IS HVR/AIR, TO DISSIPATE. MONITOR SURROUNDING AREA FOR OXYGEN LEVELS. (ING 16)

Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

Handling and Storage

Handling and Storage Precautions: USE W/ADEQ VENT. CYLS SHOULD BE STORED IN DRY, WELL-VENTilated AREAS AWAY FROM SOURCES OF HEAT. COMPRESSED GASES CAN PRESENT SIGNIFICANT SFTY HAZ.

Other Precautions: STORE CONTRS AWAY FROM HEAVILY TRAFFIC ED AREAS & EMEr EXITS. POST "NO SMKNG/OPEN FLAMES" SIGNS IN STOR/USE AREAS. SOLID CARBON DIOXIDE SHOULD BE STORED IN INSULATED CONTRS WHICH OPEN FROM TOP, & THAT HAVE LOOSE FITTING LIDS S0 (ING 21)

Exposure Controls/Personal Protection

Respiratory Protection: MAINTAIN OXYGEN LEVELS >19.5% IN WORKPLACE. USE NIOSH APPRVD SUPPLIED-AIR RESP PROT IF OXYGEN LEVELS ARE <19.5% OR DURING EMEr RESPONSE TO RELEASE OF THIS PROD. IF RESP PROT IS REQUIRED, FOLLOW REGS OF OSHA RESP PROT STD (29 CFR 1910.134).

Ventilation: LOCAL EXHAUST VENT PREFERRED, IT PREVENTS CARBON DIOXIDE DISPERSION INTO WORK PLACE BY ELIMINATING IT AT ITS SOURCE.

Protective Gloves: MECH-RESIST GLOVES WHEN HNDLG CYLINDERS.

Eye Protection: ANSI APPRVD CHEM WORKERS GOGGLES.

Other Protective Equipment: ANSI APPRVD EMEr EYEWASH & DELUGE SHOWER, USE BODY PROT APPROP FOR TASK. SUFFICIENT INSULATION FROM EXTREME COLD.

Work Hygienic Practices: AVOID GETTING IN YOU. DO NOT EAT/DRINK WHILE HANDLING CHEMICALS. BE AWARE OF ANY SIGNS OF DIZZINESS/FATIGUE; (ING 20)

Supplemental Safety and Health

SPEC GRAV: 1.52 (GAS); 1.54 (SOLID). EXTING MEDIA: BLAZE. USE EXTING MEDIA APPROP FOR SURROUNDING FIRE. EXPLO HAZ: MAGNESIUM, ZIRCON, TITANIUM ALLOYS), ARE READILY IGNITED & EXPLODE IN PRESENCE OF CARBON DIOXIDE. MIXTS OF SOLID CARBON DIOXIDE W/SODIUM & POTASSIUM ALLOYS ARE IMPACT-SENSITIVE & EXPLODE VIOLENTLY. (ING 3)

Physical/Chemical Properties

Boiling Pt: B.P. Text: -109F, -79C
Vapor Pres: 844.7 PSIA
Vapor Density: 1.833 KG/M3
Spec Gravity: SUP DAT
Solubility in Water: 0.90% @ 20C
Appearance and Odor: WHITISH, ODORLESS, SOLID/COLORLESS, ODORLESS GAS/COLORLESS ODORLESS LIQUID

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

Stability Indicator/Materials to Avoid: YES
POWDERED ALUMINUM, BERYLLIUM, CERIUM ALLOYS, CHROMIUM, MANGANESE, TITANIUM, ZIRCONIUM. CONT NEHC FOR MORE INFO.
Stability Condition to Avoid: AVOID EXPOSING CYLINDERS OF CARBON DIOXIDE TO EXTREMELY HIGH TEMPERATURES, WHICH COULD CAUSE CYLINDERS TO RUPTURE/BURST.
Hazardous Decomposition Products: CARBON DIOXIDE GAS IN ELEC DISCHARGE YIELDS CARBON MONOXIDE & OXYGEN. IN PRESENCE OF MOISTURE, IT FORMS CARBONIC ACID.
Conditions to Avoid Polymerization: CARBON DIOXIDE ACTS TO CATALYZE THE POLYMERIZATION OF ACRYLALDEHYDE AND AZIRIDINE.

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

Waste Disposal Methods: WASTE DISPOSAL MUST BE IN ACCORDANCE WITH APPROPRIATE FEDERAL, STATE, AND LOCAL REGULATIONS. RETURN CYLINDERS WITH ANY RESIDUAL PRODUCT TO AIR GAS. DO NOT DISPOSE OF LOCALLY.

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