

AIR PRODUCTS AND CHEMICALS INC. -- CARBON DIOXIDE, DRY ICE (SOLID ONLY) --  
4210-00-288-7219

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

Product ID: CARBON DIOXIDE, DRY ICE (SOLID ONLY)

MSDS Date: 02/16/1981

FSC: 4210

NIIN: 00-288-7219

MSDS Number: CBRYQ

=== 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: 215-481-4911

Emergency Phone Num: 800-623-9374

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

Company Name: BADGER FIRE PROTECTION INC

Address: 4261 SEMINOLE TRAIL

Box: City: CHARLOTTESVILLE

State: VA

ZIP: 22901

Country: US

Phone: 804-973-4361

CAGE: 6L214

Company Name: BADGER POWHATAN

Address: ROUTE 29 NORTH

Box: 7146

City: CHARLOTTESV

ILLE  
State:VA  
ZIP:22906  
Country:US  
Phone:804-973-4361  
CAGE:0FYK7

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

Ingred Name:CARBON DIOXIDE  
CAS:124-38-9  
RTECS #:FF6400000  
Other REC Limits:NONE RECOMMENDED  
OSHA PEL:5000 PPM  
ACGIH TLV:5000PPM/30000STEL;96

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

LD50 LC50 Mixture:TLV=5000PPM(TLV-STEL)-15000PPM,1.5%BYVOL  
Routes of Entry: Inhalation:YES Skin:YES Ingestion:NO  
Reports of Carcinogenicity:NTP:NO  
IARC:NO OSHA:NO  
Health Hazards Acute and Chronic:CARBON DIOXIDE DOESN'T SUPPORT  
LIFE.MAY PRODUCE IMMED HAZ ATMS.@CONC >1.5% MAY PRODUCE  
HYPERVENTILLATION,HEAD,VISUAL DISTURB,TREMOR,LOSS OF  
CONSC,DEATH.CONC >10% UNCONSC CAN OCCUR W/O WARNING,PREVENTI NG  
SELF-RESCUE.@MUCH HIGHER CONC DISPLACES OXY IN AIR BELOW LEVELS  
NECESSARY TO SUPPORT LIFE.CO2 MINOR BUT (SUPPLEMENTA)  
Effects of Overexposure:CONC 3-6%-HEADACHES, DYSPNEA,  
PERSPIRATION.6-10%-HEADACHES, DYSPNEA, PERSPIRATION  
, TREMORS,  
VISUAL DISTRUBANCE, UNCONSC. OVER 10%-UNCONSC.  
Medical Cond Aggravated by Exposure:NONE SPECIFIED BY MANUFACTURER.

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

First Aid:PERSONS SUFFERING FROM TOXIC EFFECT OF CO2 SHOULD BE MOVED TO  
AREAS W/NORMAL ATM.SCBA MAY BE NECESSARY TO PREVENT TOXIC  
EXPO/ASPHYXIATION OF RESCUE WORKERS.ASSISTED RESP/SUPPLEMEN OXY  
SHOULD BE GIVEN IF NOT BREATHING.FROZEN TISSUES SHOULD BE  
FLOODED/SOAKED W/TEPID WATER(1

05-115F).DON'T USE HOT  
WATER.CRYOGENIC BURNS RESULT IN BLISTER/DEEPER TISSUE FREEZING  
SHOULD BE SEEN PROMPTLY BY PHYSICIAN.

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

Flash Point:NA  
Autoignition Temp:Autoignition Temp Text:NA  
Lower Limits:NA  
Upper Limits:NA  
Extinguishing Media:CARBON DIOXIDE IS AN EXTINGUISHING AGENT FOR CLASS  
B & C FIRES.

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

Spill Release Procedures:SM QUANT VAPORIZE LEAVI  
NG CO2 SNOW(COMBINATION  
OF DRY ICE/WATER ICE WHERE ATM MOISTURE PRESENT).VENTI INDOOR AREAS  
WELL.VENTI WELL/AVOID CONTACT W/COLD VAP/DRY ICE.CO2 HEAVY GAS &  
WILL REMAIN LOW SPOT S W/O ASSIST VENTI.  
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

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

Handling and Storage Precautions:PREVENT SKIN CONTACT/ENTRAPMENT OF LIQ  
IN CLSD SYS.STORE/USE LIQ CNTNR/CYL IN WELL VENTI AREA.CYL CONTAIN  
GAS/LIQ CO2 @EXTREMELY  
HI PRESS/HNDL W/CARE.  
Other Precautions:NEVER USE DIRECT FLAME TO HEAT CYL.USE CHECK  
VAL-PREVENTS BACKFLOW INTO STORAGE CNTNR.AVOID DRAG/ROLL/SLIDE  
CYL;USE SUITABLE HAND TRUCK.KEEP AWAY FROM HEAT SOURCES.DON'T STORE  
IN HEAVY TRAFFIC AREAS.A VOID EXPO TO SALT/OTHER CORR CHEM.

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

Respiratory Protection:SELF-CONTAINED BREATHING APPARATUS IN  
OXYGEN-DEFICIENT ATM OR WEHRE CARBON DIOXIDE EXCEEDS  
1.5%.CAUTION!RESPIR  
ATORS WILL NOT FUNCTION.USE MAY RESULT IN  
ASPHYXIATION.  
Ventilation:NAT/MECH:GAS/VAP PRESENT.LOC:@PT SOURCES OF CO2  
VAP.MECH(GEN):LOW LYING AREA NOT VENT.VENT SITUATED TO  
AVOID(WORKHYGPRA)  
Protective Gloves:LOOSE FITTING/IMPERMEABLE(LEATHER)GLOVES  
Eye Protection:SAFETY GLASSES.  
Other Protective Equipment:NONE.  
Work Hygienic Practices:VENTI:HIGHER THAN NORMAL CONC OF CO2 IN  
WORKAREA.REF:COMPRESSED GAS ASSOC PAMPHLET P-1 ADDN STORAGE  
RECOMMENDATIONS.  
Supplemental Safety and Hea

lth

APPEARANCE:IF PRESSURE SUDDENLY RELIEVED LIQ RAPIDLY COOLS AS IT  
EVAPORATES & SUBLIMES FORMING DRY ICE @-109.3F. HEALTH  
HAZ:IMPORTANT CONSTITUENT OF STM AVG ABOUT 0.03% OR 300 PPM BY  
VOL.@HIGHER CONC AFFECTS RESP RATE. DISPO:VENT TO ATM SLOWLY  
PREVENTING RAPID DEPRESSUREIZATION RESULTING IN SOLID CO2 FORM  
LONGER TO VAP

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

HCC:G3

Boiling Pt:B.P. Text:-109F,-78C

Melt/Freeze Pt:M.P/F.P Text:-70F,-57C

Decomp

Temp:Decomp Text:NP

Vapor Pres:831PSIA

Vapor Density:0.115

Spec Gravity:1.53 @68F,1ATM

pH:NP

Viscosity:NP

Evaporation Rate & Reference:NP

Solubility in Water:87.8% @1ATM & 68F.

Appearance and Odor:COLORLESS,ODORLESS GAS OR LIQUID.STORED IN CNTNR  
UNDER OWN VAP PRESSURE(SUPPLEM

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

Stability Indicator/Materials to Avoid:YES

IF MOISTURE IS PRESENT MATLS MUST RESIST CARBONIC ACID.

Stability Condition to Avoid:NONE.

Hazardous

Decomposition Products:NONE.

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

Waste Disposal Methods:DON'T ATTEMPT TO DISPO OF RESIDUE IN COMPRESSED  
GAS CYL.RETURN TO AIR PROD W/RESIDUAL PRESSURE/CYL VALVE TIGHTLY  
CLSD/VALVE CAP ON.DISPO BULK QUANT FROM REFRIG STORAGE TK DISPO  
OUTSIDE IN WELL VENTI L OCATION AWAY FROM WORKAREA,VAP CAN  
DISPERSE(SUPPL)

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