

AIR PRODUCTS AND CHEMICALS INC -- OXYGEN, COMPRESSED (SEE SUPPLEMENTAL DATA) --
6830-01-228-7090

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

Product ID:OXYGEN, COMPRESSED (SEE SUPPLEMENTAL DATA)

MSDS Date:08/01/1997

FSC:6830

NIIN:01-228-7090

Status Code:A

MSDS Number: CLHHQ

=== Responsible Party ===

Company Name:AIR PRODUCTS AND CHEMICALS INC

Address:7201 HAMILTON BLVD

City:ALLENTOWN

State:PA

ZIP:18195-15

01

Country:US

Info Phone Num:800-345-3148/ 800-752-1597

Emergency Phone Num:800-523-9374

Resp. Party Other MSDS Num.:1012

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

Contract Num:SP0450-01-M-ZF49

CAGE:00742

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

Ingred Name:OXYGEN

CAS:7782-44-7

RTECS #:RS2060000

> Wt:99.

Other REC Limits:N/E (NIOSH)

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

Reports of Carcinogenicity:NTP:NO IARC:NO

Health Hazards Acute and Chronic:EMERGENCY OVERVIEW: OXYGEN IS AN ODORLESS, COLORLESS, NONFLAMMABLE GAS STORED AT HIGH PRESSURE. IT IS AN OXIDIZING GAS AND VIGOROUSLY ACCELERATES COMBUSTION. KEEP AWAY FROM OILS OR GREASE. RESCUE PERSONNEL SHOULD BE AWARE OF THE EXTREME FIRE HAZARDS ASSOCIATED WITH OXYGEN-ENRICHED ATMOSPHERES, AND THAT

AT SELF CONTAINED BREATHING APPARATUS MAY BE REQUIRED.

BREATHING 80% OR MORE OXYGEN AT ATMOSPHERIC PRESSURE FOR MORE THAN A FEW HOURS MAY CAUSE NASAL STUFFINESS, COUGH, SORE THROAT, CHEST PAIN AND BREATHING DIFFICULTY. BREATHING OXYGEN AT HIGHER PRESSURE INCREASES THE LIKELIHOOD OF ADVERSE EFFECTS WITHIN (CONTD.SEE "OTHER INFO").

Explanation of Carcinogenicity:OXYGEN IS NOT LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN BY NTP, IARC, OR OSHA SUBPART Z.

Effects of Overexposure:

NASAL STUFFINESS, COUGH, SORE THROAT, CHEST PAIN, BREATHING DIFFICULTY, LUNG DAMAGE, CNS EFFECTS, DIZZINESS, POOR COORDINATION, TINGLING SENSATION, VISUAL AND HEARING DISTURBANCES, MUSCULAR TWITCHING, UNCONSCIOUSNESS, CONVULSIONS, PROLONGATION OF ADAPTATION TO DARKNESS, AND REDUCED PERIPHERAL VISION.

Medical Condition Aggravated by Exposure:PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE RETAIN CO₂ ABNORMALLY. RAISING OXYGEN CONCENTRATION IN THE BLOOD DEPRESSES THEIR BREATHING AND RAISES RETAINED CARBON DIOXIDE TO A DANGEROUS LEVEL.

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

First Aid:INHALATION: MOVE TO FRESH AIR OR IF IN ELEVATED PRESSURES, REDUCE OXYGEN PRESSURES TO ONE ATMOSPHERE. CALL A PHYSICIAN, THE PHYSICIAN SHOULD BE ADVISED THAT THE VICTIM HAS BEEN EXPOSED TO A HIGH CONCENTRATION OF OXYGEN. NO TREATMENT IS REQUIRED IN THE ABSENCE OF SYMPTOMS OR HIGH PRESSURE EXPOSURE. EYE/SKIN CONTACT: NOT APPLICABLE

PLICABLE.

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

Flash Point:NA

Lower Limits:NA

Upper Limits:NA

Extinguishing Media:OXYGEN IS NONFLAMMABLE BUT WILL SUPPORT COMBUSTION.

USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

Fire Fighting Procedures:EVACUATE ALL PERSONNEL FROM THE DANGER AREA.

IF POSSIBLE, SHUT OFF FLOW OF OXYGEN WHICH IS SUPPORTING THE FIRE.

IMMEDIATELY COOL CONTAINERS WITH WATER SPRAY FROM MAXIMUM DISTANCE.

WHEN COOL MOVE CYLIN

DER FROM FIRE AREA, IF POSSIBLE WITHOUT RISK.

SELF CONTAINED BREATHING APPARATUS MAY BE REQUIRED FOR RESCUE WORKERS.

Unusual Fire/Explosion Hazard:OXYGEN ACCELERATES COMBUSTION. FIRE

RESISTANT CLOTHING MAY BURN IN OXYGEN RICH ATMOSPHERES. OXYGEN MAY

FORM EXPLOSIVE COMPOUNDS WHEN EXPOSED TO OIL, GREASE, OTHER

HYDROCARBON MATERIALS. PRESSURE IN CO NTAINER CAN INCREASE IN HEAT

AND RUPTURE IF PRESSURE RELIEF DEVICES FAIL.

===== Accidental Release Measures ===

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Spill Release Procedures:EVACUATE ALL PERSONNEL FROM AFFECTED AREA.

SHUT OF SOURCE OF OXYGEN IF POSSIBLE. INCREASE VENTILATION TO

RELEASE AREA. PERSONNEL WHO HAVE BEEN EXPOSED TO HIGH

CONCENTRATIONS OF OXYGEN SHOULD STAY IN A WELL-VENTILATED OR OPEN

AREA FOR 30 MINUTES BEFORE GOING INTO A CONFINED SPACE OR NEAR AN

IGNITION SOURCE. IF LEAK IS FROM CONTAINER OR ITS VALVE, CALL THE

AIR PRODUCTS EMERGENCY TELEPHONE NUMBER.

===== Handling an

d Storage =====

Handling and Storage Precautions:STORE CYLINDERS UPRIGHT IN A

WELL-VENTILATED , SECURE AREA, PROTECTED FROM THE WEATHER. STORE

AT TEMPERATURES NOT EXCEEDING 125F AND IN AREA FREE OF COMBUSTIBLE

MATERIALS. STORE AWAY FROM HEAVILY TRA VELED AREAS AND EMERGENCY

EXITS. AVOID AREAS WHERE SALT OR OTHER CORROSIVE MATERIALS ARE

PRESENT.

Other Precautions:DO NOT HEAT CYLINDER TO INCREASE DISCHARGE RATE. ALL

GAUGES, VALVES, REGULATORS, PIPING, EQ

EQUIPMENT USED IN OXYGEN

SERVICE MUST BE CLEANED FOR OXYGEN SERVICE IN ACCORDANCE WITH COMPRESSED GAS ASSOCIATION PAMPHLET G-4.1. COMPRESSED GAS CYLINDERS SHALL NOT BE REFILLED EXCEPT BY QUALIFIED PRODUCERS OF COMPRESSED GASES.

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

Respiratory Protection:GENERAL USE: NONE REQUIRED. EMERGENCY: USE SCBA DUE TO POSSIBILITY OF FIRE WHEN CONCENTRATIONS EXCEED 23%.

Ventilation:PROVIDE VENTILATION AND/OR LOCAL EXHAUST TO PREVENT

ACCUMULATION OF HIGH CONCENTRATIONS OF GAS (GREATER THAN 23%).

Protective Gloves:WORK GLOVES ARE RECOMMENDED WHEN HANDLING CYLINDERS.

Other Protective Equipment:SAFETY SHOES ARE RECOMMENDED WHEN HANDLING CYLINDERS. CLOTHING EXPOSED TO HIGH CONCENTRATIONS MAY RETAIN OXYGEN 30 MINUTES OR LONGER AND BECOME A POTENTIAL FIRE HAZARD. STAY AWAY FROM IGNITION SOURCES

Supplemental Safety and Health

THIS NSN IS FOR A CALIBRATING GAS MIXTURE COMPOSED OF NITROGEN, OXYGEN, AND

DEUTERIUM. THIS MSDS DESCRIBES THE OXYGEN CONTENT IN THE MIXTURE, (SERIAL NUMBER "CLHHQ"), SEE THIS SAME NSN SERIAL NUMBER "CLHJF", FOR THE DEUTERIUM GAS INGREDIENT DATA, AND SERIAL NUMBER "CLHHD", FOR THE NITROGEN GAS INGREDIENT DATA.

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

HCC:G3

Boiling Pt:=-182.9C, -297.3F

Melt/Freeze Pt:=-218.8C, -361.9F

Vapor Pres:N/A AT 70F

Spec Gravity:1.10

Solubility in Water:0.049

Appearance and Odor:COLORLESS GAS, ODORLESS.

(GAS DENSITY @70F AND 1

ATM: 0.083 LB/FT3.

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

Stability Indicator/Materials to Avoid:YES

OILS, GREASE, HYDROCARBONS AND FLAMMABLE MATERIALS.

Stability Condition to Avoid:NONE

Hazardous Decomposition Products:NONE

Conditions to Avoid Polymerization:WILL NOT OCCUR.

===== Toxicological Information =====

Toxicological Information:AT ATMOSPHERIC CONCENTRATION AND PRESSURE, OXYGEN POSES NO TOXIC

ITY HAZARDS. PREMATURE INFANTS EXPOSED TO HIGH OXYGEN CONCENTRATIONS MAY SUFFER DELAYED RETINAL DAMAGE WHICH CAN PROGRESS TO RETINAL DETACHMENT AND BLINDNESS. RETINAL DAMAGE MAY ALSO OCCUR IN ADULTS EXPOSED TO 100% OXYGEN FOR EXTENDED PERIODS (24 TO 48 HR). AT TWO OR MORE ATMOSPHERES CENTRAL NERVOUS SYSTEM (CNS) TOXICITY OCCURS. SYMPTOMS INCLUDE NAUSEA, VOMITING, DIZZINESS, OR VERTIGO, MUSCLE TWITCHING, VISION CHANGES, LOSS OF CONSCIOUSNESS AND GENERALIZED SEIZURES.

AT 3 ATMOSPHERES, CNS TOXICITY OCCURS IN LESS THAN 2 HOURS, AND AT 6 ATMOSPHERES IN ONLY A FEW MINUTES.

===== Ecological Information =====

Ecological:THE ATMOSPHERE CONTAINS 21% OXYGEN. NO ADVERSE ECOLOGICAL EFFECTS ARE EXPECTED. OXYGEN IS NOT LISTED AS A MARINE POLLUTANT BY DOT (49 CFR 171).

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

Waste Disposal Methods:UNUSED PRODUCT/ EMPTY CONTAINER: RETURN CONTAINER AND UN
USED PRODUCT TO SUPPLIER. DO NOT ATTEMPT TO DISPOSE OF RESIDUAL OR UNUSED QUANTITIES. DISPOSAL: FOR EMERGENCY DISPOSAL, SECURE CYLINDER AND SLOWLY DISCHARGE GAS TO THE ATMOSPHERE IN A WELL VENTILATED AREA OR OUTDOORS.

===== MSDS Transport Information =====

Transport Information:DOT HAZARD CLASS: 2.2 (NONFLAMMABLE GAS). DOT SHIPPING NAME: OXYGEN, COMPRESSED; DOT SHIPPING LABEL: NONFLAMMABLE GAS, OXIDIZER; UN 1072; PLACARD: NONFLAMMABLE GAS OR OXYGEN.

CYLINDERS SHOULD BE TRANSPORTED IN A SECURE UPRIGHT POSITION IN A WELL VENTILATED TRUCK; NEVER IN PASSENGER COMPARTMENT. COMPRESSED GAS CYLINDERS NOT BE REFILLED EXCEPT BY QUALIFIED PRODUCERS OF COMPRESSED GASES. SHIPMENT OF A COMPRESSED GAS CYLINDER WHICH HAS NOT BEEN FILLED BY THE OWNER OR WITH OWNERS WRITTEN CONSENT IS VIOLATION OF FEDERAL LAW. SEE TRANSPORTATION FOR PSN FOR NSN PRODUCT (COMPRESSED GAS, N.O.S., UN 1956.)

===== Regulatory

ry Information =====

SARA Title III Information:SECTION 302: REQUIRES EMERGENCY PLANNING
BASED ON THRESHOLD PLANNING QUANTITIES (TPQ) AND RELEASE REPORTING
BASED ON REPORTABLE QUANTITIES (RQ) OF EPA'S EXTREMELY HAZARDOUS
SUBSTANCES (40 CFR 355). OX YGEN IS NOT LISTED AS AN EXTREMELY
HAZARDOUS SUBSTANCE. SECTIONS 311 312: REQUIRE SUBMISION OF MSDSS
AND CHEMICAL INVENTORY REPORTING WITH IDENTIFICATION OF EPA DEFINED
HAZARDCLASSES. THE HAZARD CLAS SES FOR

THIS PRODUCT ARE:

IMMEDIATE: NO; DELAYED: NO; PRESSURE: YES; REACTIVITY: NO; FIRE:
YES. SECTION 313: ANNUAL REPORTS OF RELEASES OF TOXIC CHEMICALS
THAT APPEAR IN 40 CFR 372. OXIGEN IS NOT LIST ED AS A TOXIC
CHEMICAL.

Federal Regulatory Information:CERCLA: REQUIRES NOTIFICATION TO THE
NATIONAL RESPONSE CENTER OF RELEASES OF QUANTITIES OF HAZARDOUS
SUBSTANCES EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITIES(RQ)
IN 40 CFR 302.4. CERCLA REPORTAB LE QUANTITY: NONE. 40 C

FR PART 88:

OXYGEN IS NOT LISTED AS A REGULATED SUBSTANCE. TSCA: OXYGEN IS
LISTED ON THE TSCA INVENTORY. OSHA: 29 CFR 1910.119: OXYGEN IS NOT
LISTED AS A HIGHLY HAZARDOUS CHEMI CAL.

State Regulatory Information:CALIFORNIA PROPOSITION 65: THIS PRODUCT
DOES NOT CONTAIN ANY LISTED SUBSTANCES FOR WHICH THE STAT OF
CALIFORNIA REQUIRES WARNING UNDER THIS STATUTE. SCAQMD RULE: VOC =
NOT APPLICABLE.

===== Other Information =====

Disclaime

r (provided with this information by the compiling agencies):

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