

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:18195-1501

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 Iden

tification =====

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 SELF CONTAINED BREATHING APPARATUS MAY BE REQUIRED. BREATH

ING 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, BREAT

HING 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 Cond 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.

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

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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 CYLINDERS 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 CONTAINER CAN INCREASE IN HEAT
AND RUPTURE IF PRESSURE RELIEF DEVICES FAIL.

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

Spill Release Procedures:EVACUATE ALL PERSONNEL
FROM AFFECTED AREA.
SHUT OFF 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 and 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 TRAVELED 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, EQUIPMENT USED IN OXYGEN
SERVICE MUST BE CLEANED FOR OXYGEN SERVICE

VICE 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 HYDROGEN. THIS MSDS DESCRIBES THE OXYGEN CONTENT IN THE
MIX

TURE, (SERIAL NUMBER "CLHHQ"), SEE THIS SAME NSN SERIAL NUMBER
"C LHJF", FOR THE HYDROGEN 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.

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=== 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 TOXICITY HAZARDS. PREMATURE INFANTS EXPOSED TO HIGH
OXYGEN CONCENT

RATIONS 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 UNUSED 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 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 SUBMISSION 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 CFR PART 88:
OXYGEN IS NOT LISTED AS A REGULATED SUBSTANCE. TS
CA: 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 =====

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