



MAGGAS MEDICAL INC.

TORONTO, ONT.  
M3N 1X6  
TEL: (416) 410-0200 FAX: (416) 650-9443  
MAGGAS MEDICAL INC.  
154 NORFINCH DR. UNIT #1

**24-HOUR EMERGENCY CONTACT**  
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PRODUCT: OXYGEN

**SECTION 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

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PREPARED BY ..... ENVIRONMENTAL HEALTH & SAFETY DEPT. BRAMPTON, ONTARIO  
PREPARATION DATE ..... FEB. 01/ 2013  
PRODUCT NAME ..... OXYGEN  
TRADE NAMES & SYNONYMS ..... OXYGEN, OXYGEN COMPRESSED, OXYGEN REFRIGERATED LIQUID.  
CHEMICAL FAMILY ..... OXYGEN: OXIDIZING GAS  
FORMULA: ..... OXYGEN: O2

**SECTION 02: COMPOSITION/INFORMATION INGREDIENTS**

HAZARDOUS INGREDIENTS	%	EXPOSURE LEVELS	C.A.S. #	LD/50, ROUTE, SPECIES	LC/50, ROUTE, SPECIES
OXYGEN	100	NOT APPLICABLE	7782-44-7	NONE	NONE

**SECTION 03: HAZARDS IDENTIFICATION**

SYMPTOMS OF EXPOSURE: ..... OXYGEN IS NONTOXIC UNDER MOST CONDITIONS OF USE AND IS NECESSARY TO SUPPORT LIFE. LIQUID OXYGEN OR COLD GAS WILL FREEZE TISSUES AND CAN CAUSE SEVERE CRYOGENIC (EXTREMELY LOW TEMPERATURE) BURNS.

**SECTION 04: FIRST AID MEASURES**

RECOMMENDED FIRST AID TREATMENT:  
FROSTBITE: ..... IF CRYOGENIC LIQUID OR COLD BOIL-OFF GAS CONTACTS A WORKER'S SKIN OR EYES, FROZEN TISSUES SHOULD BE FLOODED OR SOAKED WITH TEPID WATER (105 - 115F; 41 -46C). DO NOT USE HOT WATER! BURNS WHICH RESULT IN BLISTERING OR DEEPER TISSUE FREEZING SHOULD BE SEEN PROMPTLY BY A PHYSICIAN.

**SECTION 05: FIRE FIGHTING MEASURES**

FLASH POINT (Method Used): ..... NOT APPLICABLE  
AUTO IGNITION TEMPERATURE: ..... NOT APPLICABLE  
LOWER EXPLOSION LIMIT (% By Vol. In air @ atm.): ..... NOT APPLICABLE  
UPPER EXPLOSION LIMIT (% By Vol. In air @ atm.): ..... NOT APPLICABLE  
EXTINGUISHING MEDIA: ..... NOT APPLICABLE  
SPECIAL FIRE FIGHTING PROCEDURES: ..... OXYGEN IS NONFLAMMABLE, BUT SUPPORTS AND VIGOROUSLY ACCELERATES COMBUSTION OF FLAMMABLES. TO FIGHT FIRES, SHUT OFF SOURCES OF OXYGEN AND FIGHT LIKE CONVENTIONAL FIRE.  
UNUSUAL FIRE AND EXPLOSION HAZARDS: ..... SOME MATERIALS WHICH ARE NONCOMBUSTIBLE IN AIR WILL BURN IN THE PRESENCE OF OXYGEN. CYLINDER (S) EXPOSED TO FIRE OR INTENSE HEAT MAY VENT RAPIDLY OR EXPLODE.

**SECTION 06: ACCIDENTAL RELEASE MEASURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: ..... PREVENT LIQUID OXYGEN FROM CONTACTING GREASE, OIL, ASPHALT OR COMBUSTIBLES. VENTILATE AREA TO EVAPORATE AND DISPERSE PRODUCT. FLUSH LIQUID SPILL WITH WATER TO DISPERSE. DO NOT ENTER AREAS OF HIGH OXYGEN

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SECTION 06: ACCIDENTAL RELEASE MEASURES - CONTINUES		
<p style="text-align: center;">INCREASE ITS FLAMMABILITY. AVOID SMOKING AND CONTACT WITH SOURCES OF IGNITION AFTER EXPOSURE TO CONCENTRATION OF OXYGEN HIGHER THAN THE NORMAL ATMOSPHERE.</p>		
SECTION 07: HANDLING AND STORAGE		
SPECIAL HANDLING RECOMMENDATIONS:	<p>PREVENT CONTACT OF LIQUID WITH EXPOSED SKIN. FOR LIQUID WITHDRAWL, WEAR FACE SHIELD AND GLOVES. PREVENT ENTRAPMENT OF LIQUID IN CLOSED SYSTEMS. USE ONLY IN WELL-VENTILATED AREAS. CLEANLINESS AND COMPATIBILITY OF MATERIALS IN CONTACT WITH THIS</p>	
SPECIAL STORAGE RECOMMENDATIONS:	<p>PRODUCT ARE ESSENTIAL ESPECIALLY INTERNAL PARTS OF PIPING SYSTEMS. SOME ELASTOMERS (O-RINGS, VALVE SEATS, ETC.) ARE NOT COMPATIBLE WITH OXYGEN. OPEN VALVES SLOWLY. COMPRESSED GAS CYLINDERS CONTAIN PRODUCT AT EXTREMELY HIGH PRESSURE AND SHOULD BE HANDLED WITH CARE. USE A PRESSURE REDUCING REGULATOR WHEN CONNECTING CYLINDER TO LOWER PRESSURE PIPING OR SYSTEMS. SECURE CYLINDERS WHEN IN USE. DO NOT HEAT CYLINDER BY ANY MEANS TO INCREASE THE DISCHARGE RATE OF PRODUCT FROM THE CYLINDER. USE A CHECK VALVE OR TRAP IN THE DISCHARGE LINE TO PREVENT HAZARDOUS BACKFLOW INTO CYLINDER. DO NOT DRAG, SLIDE OR ROLL CYLINDERS. USE A SUITABLE HAND TRUCK FOR CYLINDER MOVEMENT. FOR ADDITIONAL HANDLING RECOMMENDATIONS CONSULT THE MAGGAS MEDICAL INC. OR THE COMPRESSED GAS ASSOCIATION PAMPHLET P-1.</p> <p>STORAGE MUST BE IN COMPLIANCE WITH LOCAL FIRE DEPARTMENT AND OCCUPATIONAL HEALTH AND SAFETY REGULATIONS. PROTECT CYLINDERS FROM PHYSICAL DAMAGE. STORE IN COOL, DRY, WELL-VENTILATED AREA AWAY FROM HEAVILY TRAVELED AREAS AND EMERGENCY EXITS. IT IS RECOMMENDED THAT LIQUID CYLINDERS BE STORED OUTSIDE AND THE GAS OR LIQUID PIPED TO THE USE POINT. HOWEVER, IF LIQUID CYLINDERS ARE TO BE STORED OR TRANSPORTED IN AN ENCLOSED AREA, IT IS ESSENTIAL THAT THE AREA BE WELL VENTILATED. DO NOT STORE CYLINDERS OF THIS PRODUCT WITHIN 20 FEET OF FLAMMABLE OR COMBUSTIBLE MATERIALS, ESPECIALLY OIL OR GREASE. KEEP CYLINDERS AWAY FROM SOURCES OF HEAT. NO PART OF A CYLINDER SHOULD BE SUBJECTED TO A TEMPERATURE ABOVE 125F (51.7C). VALVE CAPS SHOULD REMAIN ON CYLINDERS NOT CONNECTED FOR USE. SEGREGATE FULL AND EMPTY CYLINDERS. STORE AWAY FROM COMBUSTIBLE MATERIALS. AVOID EXPOSURE TO AREAS WHERE SALT OR OTHER CORROSIVE CHEMICALS ARE PRESENT. FOR ADDITIONAL STORAGE RECOMMENDATIONS CONSULT MAGGAS MEDICAL INC. OR THE COMPRESSED GAS ASSOCIATION PAMPHLET P-1.</p>	
SECTION 08: EXPOSURE CONTROLS/ PERSONAL PROTECTION		
PROTECTIVE EQUIPMENT		
RESPIRATORY/ TIRE:	NOT APPLICABLE	
VENTILATION:	NATURAL OR MECHANICAL WHEREVER GAS COULD BE PRESENT. VENTS SHOULD BE SITUATED TO AVOID CONCENTRATING THE GAS IN WORK AREAS OR AT GROUND LEVEL.	
EYE/TYPE:	SAFETY GOGGLES. FACE SHIELD. SAFETY GLASSES RECOMMENDED WHEN HANDLING CYLINDERS.	
GLOVES/TYPE:	(LIQUID) LOOSE-FITTING GLOVES OF IMPERMEABLE MATERIAL. SUCH AS LEATHER. LEATHER WORK GLOVES RECOMMENDED WHEN HANDLING COMPRESSED GAS CYLINDERS.	
OTHER PROTECTIVE EQUIPMENT:	SAFETY SHOES RECOMMENDED WHEN HANDLING COMPRESSED GAS CYLINDERS.	
SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES		
APPEARANCE AND ODOR:	GASEOUS OXYGEN IS COLORLESS AND ODORLESS. LIQUID OXYGEN IS PALE BLUE AND ODORLESS.	
BOILING POINT:	@ 1 ATM -297.3F (-183.0C)	
FREEZING POINT:	@ 1 ATM -361.8F (-218.8C)	
GAS DENSITY (1b/cu.ft):	@ 68F (20C), 1 ATM 0.08309	
LIQUID DENSITY:	@ B.P., 1 ATM 71.21	
SPECIFIC GRAVITY (AIR=1):	@ 68F (20C) , 1 ATM 1.10	
SOLUBILITY IN WATER:	@ 77F (25C), 1 ATM 3.16% BY VOLUME	
VAPOR PRESSURE:	NOT APPLICABLE	
SECTION 10: STABILITY AND REACTIVITY		
STABILITY:	STABLE	
CONDITIONS TO AVOID:	MATERIALS WHICH BURN IN AIR WILL BURN VIOLENTLY IN ATMOSPHERE RICHER THAN APPROXIMATELY 25% OXYGEN. SOME MATERIALS WILL BURN IN PURE OXYGEN WHICH ARE NONFLAMMABLE IN AIR.	
INCOMPATIBILITY (MATERIALS TO AVOID):	ALL FLAMMABLES, ESPECIALLY PETROLEUM PRODUCTS, ASPHALT, OTHER VOLATILE FLAMMABLES.	

CONDITIONS TO AVOID: . . . . . NONE.	
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SECTION 10: STABILITY AND REACTIVITY – CONTINUES	
HAZARDOUS DECOMPOSITION . . . . . NONE.	
PRODUCTS:	
HAZARDOUS POLYMERIZATION: . . . . . WILL NOT OCCUR.	
SECTION 11: TOXICOLOGICAL INFORMATION	
THRESHOLD LIMIT VALUE (TLV): . . . . .	02: NOT APPLICABLE
TOXICOLOGICAL PROPERTIES: . . . . .	OXYGEN IS NONTOXIC UNDER USUAL CONDITIONS OF USE. BREATHING PURE OXYGEN AT ONE ATMOSPHERE, HOWEVER, MAY PRODUCE COUGH AND CHEST PAINS WITHIN 8-24 HOURS. CONCENTRATIONS OF 60 % MAY PRODUCE THESE SYMPTOMS IN SEVERAL DAYS. AT TWO ATMOSPHERES SYMPTOMS OCCUR IN 2-3 HOURS. PARTIAL PRESSURE OF OXYGEN IN EXCESS OF TWO ATMOSPHERES MAY PRODUCE A VARIETY OF CENTRAL NERVOUS SYSTEM MANIFESTATIONS INCLUDING TINGLING OF FINGERS AND TOES, VISUAL AND HEARING DISTURBANCES, ABNORMAL SENSATIONS, IMPAIRED COORDINATION, CONFUSION, MUSCLE TWITCHING, AND SEIZURES RESEMBLING THOSE OF EPILEPSY. SEVERE HAZARDS MAY BE PRESENT WHEN CONFUSION AND IMPAIRED JUDGMENT LEAD TO OPERATIONAL ERRORS. INFANTS EXPOSED TO OXYGEN LEVELS IN EXCESS OF 35-40% MAY SUFFER PERMANENT VISUAL IMPAIRMENT OR BLINDNESS DUE TO RETROLENTAL FIBROPLASIA. PRODUCT IS NOT LISTED IN THE IARC, NTP OR OSHA SUBPART Z AS A CARCINOGEN OR POTENTIAL CARCINOGEN.
SECTION 12: ECOLOGICAL CONSIDERATIONS	
. . . . . NO ADVERSE ECOLOGICAL EFFECTS ARE EXPECTED. PRODUCT DOES NOT CONTAIN ANY CLASS I OR CLASS II OZONE DEPLETING CHEMICALS.	
SECTION 13: DISPOSAL CONSIDERATIONS	
WASTE DISPOSAL METHOD: . . . . .	ALLOW LIQUID TO EVAPORATE IN A WELL VENTILATED OUTDOOR LOCATION REMOTE FROM WORK AREAS. VENT GAS SLOWLY TO A WELL VENTILATED OUTDOOR LOCATION REMOTE FROM WORK AREAS. DISPOSAL SITE SHOULD BE REMOTE FROM WORK AREAS, OPEN FLAMES OR SOURCES OF IGNITION AND CONBUSTIBLES. DO NOT ATTEMPT TO DISPOSE OF RESIDUAL PRODUCT IN CYLINDERS. RETURN THE PROPERLY LABELED SHIPPING CONTAINER TO MAGGAS MEDICAL INC. WITH POSITIVE RESIDUAL PRESSURE, VALVES TIGHTLY CLOSED AND VALVE PROTECTION IN PLACE.
SECTION 14: TRANSPORT INFORMATION	
T.D.G. SHIPPING NAME: . . . . .	GAS: OXYGEN COMPRESSED. LIQUID: OXYGEN REFRIGERATED LIQUID
T.D.G. CLASSIFICATION: . . . . .	2.2. NON FLAMMABLE GAS. (5.1) OXIDIZING SUBSTANCE
P.I.N.: . . . . .	UN 1072 (GAS). UN. 1073 (LIQUID)
SECTION 15: REGULATORY INFORMATION	
SPECIAL LABELING INFORMATION: . . . . .	SHIPMENT MUST BE IN ACCORDANCE WITH TRANSPRTATION OF DANGEROUS GOODS REGULATIONS. CONSULT TDG REGULATIONS FOR DETAILS ON SHIPMENT OF DANGEROUS GOODS. MUST BE LABELED IN ACCORDANCE WITH WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. CONSULT WHMIS REGULATIONS FOR DETAILS.
WHMIS CLASSIFICATION: . . . . .	A: COMPRESSED GAS. C: OXIDIZING MATERIAL
ELECTRICAL CLASS. AND GROUP: . . . . .	NOT APPLICABLE.
SECTION 16: OTHER INFORMATION	
ADDITIONAL RECOMMENDATIONS OR PRECAUTIONS:	OXYGEN IS NOT TO BE USED AS A SUBSTITUTE FOR COMPRESSED AIR. APPLICATIONS SUCH AS CLEANING, DUSTING, POWERING PNEUMATIC TOOS, ETC., ARE NOT SAFE DUE TO LUBRICATING OILS AND OTHER MATERIALS PRESENT. USE EQUIPMENT DESIGNED AND CLEANED FOR OXYGEN SERVICE. CONSULT COMPRESSED GAS ASSOCIATION PAMPHLET G-4.1, "CLEANING AND EQUIPMENT FOR OXYGEN SERVICE", FOR DETAILS. IN APPLICATIONS WHERE TEMPERATURES LESS THAN -20F ARE EXPECTED, AVOID THE USE OF CARBON STEEL AND OTHER MATERIALS WHICH BECOME BRITTLE AT LOW TEMPERATURES. COMPRESSED GAS CYLINDERS MUST NOT BE FILLED WITHOUT THE PERMISSION OF THE OWNER. IF OXYGEN CONCENTRATION EXCEEDING 25% ARE SUSPECTED OR CAN OCCUR, USE OXYGEN MONITORING EQUIPMENT TO TEST FOR OXYGEN-ENRICHED ATMOSPHERES.
SPECIAL PACKAGING RECOMMENDATIONS:	CONTAINERS MEET TC/DOT SPECIFICATIONS OR ASME CODES.
NOTE: . . . . .	VARIOUS GOVERNMENT AGENCIES (i.e. TRANSPORT CANADA, MINISTRY OF LABOUR OCCUPATIONAL HEALTH AND SAFETY. FOOD AND DRUG AND OTHERS) MAY HAVE SPECIFIC REGULATIONS CONCERNING THE TRANSPORTATION, HANDLING, STORAGE AND USE OF THIS PRODUCT WHICH WILL NOT BE REFLECTD IN THIS DATA SHEET. THE CUSTOMER SHOULD REVIEW THESE REGULATIONS TO ENSURE THAT HE/SHE ISIN FULL COMPLIANCE.