MESA Specialty Gases & Equipment
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Santa Ana, California 92704 USA
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SAFETY DATA SHEET

SECTION 1 – IDENTIFICATION

Chemical Name:	Air
Chemical Formula:	Air
Chemical Family:	Inert Gas Mixture
Hazard Classification:	Compressed Gas, N.O.S., Non-Flammable Gas, UN1002, Green Label
Product Use Description:	Analytical Standard and General Laboratory Applications
Company:	MESA Specialty Gases & Equipment 2427 South Anne Street Santa Ana, California 92704 USA
Phone Number for Information:	Infotrac
Emergency Contact:	800-535-5053 (Int'l: 352-323-3500)

SECTION 2 – HAZARD(S) IDENTIFICATION

SIGNAL WORD - WARNING

HAZARD STATEMENTS: Contains gas under pressure; may explode if heated.
May support combustion.

PRECAUTIONARY STATEMENTS:

General: Use in accordance with Safety Data Sheets.

Prevention: Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.

Response: Leaking gas fire: Do not extinguish unless leak can be stopped safely.
In case of leakage, eliminate all ignition sources.
Do not open valve until prepared to use.
Always use a back flow preventative device in piping.

Storage: Protect from sunlight. Store in a well-ventilated place.

OTHER HAZARDS: High pressure gas.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	CONCENTRATION
Air	See Below	See Below
Oxygen	7782-44-7	19.5% - 23.5%
Nitrogen	7727-37-9	76.5% - 80.5%

SECTION 4 – FIRST AID MEASURES

ROUTE OF EXPOSURE:
Inhalation: N/A
Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion: N/A
Frostbite: In case of frostbite, place the frostbitten part in warm water. DO NOT USE HOT WATER. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area of the body in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

SYMPTOMS: Inhalation of Air in high pressure environments, such as underwater diving or hyperbolic chambers can result in symptoms similar to overexposure to pure oxygen. These symptoms include tingling of the fingers and toes, abnormal sensations, and impaired coordination and confusion. Decompression sickness, the “bends”, is possible following rapid decompression. Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.
HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Overexposure to Air may cause the following health effects:

ACUTE: The most significant hazard associated with Air is the pressure
hazard. Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite.

CHRONIC: There are currently no known adverse health effects associated with chronic exposure to compressed Air.

TARGET ORGANS: Respiratory system under ambient low pressure conditions. Central nervous system under ambient high pressure conditions.

HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	(BLUE)	0
FLAMMABILITY	(RED)	0
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		B

EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8

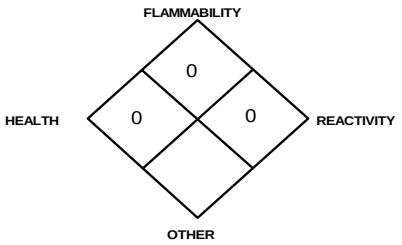
For routine industrial applications

SECTION 5 – FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Non-flammable. Air will support combustion of flammable materials. Use extinguishing media appropriate for surrounding fire.

Water Spray: YES Carbon Dioxide: YES Dry Chemical: YES
Halon: YES Foam: YES Other: Any "ABC”

NFPA RATING



UNUSUAL FIRE AND EXPLOSION HAZARDS: Gas cylinders may rupture violently when exposed to fire. Continue to cool fire exposed cylinders until flames are extinguished. Cylinder valve is equipped with a pressure relief device to safely vent the cylinder if it is exposed to elevated pressure in a fire.
SPECIAL FIRE FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment0. Move fire-exposed cylinders if it can be done without risk to firefighters. Otherwise, cool containers with hose stream and protect personnel. Withdraw immediately in case of rising sounds from venting safety device or any discoloration of tanks due to

SECTION 6 – ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, AND EMERGENCY PROCEDURES: Wear self-contained breathing apparatus when entering area unless atmospehre is proved to be safe. Monitor oxygen level. Ventilate the area.
ENVIRONMENTAL PRECAUTIONS: Prevent spreading of vapors through sewers, ventilation systems, and confined areas. Do not discharge materials into any place where their accumulation could be dangerous.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP: Stop the folow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. Move leaking cylinder to fume hood or safe outdoor area. Use monitoring equipment if hazardous conditions are suspected or likely to occur.

SECTION 7 – HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: Only experienced and properly instructed persons should handle compressed gases. Person is to know and understand the properties and hazards of the product before use. Do not remove or deface labels provided by the supplier for the identification of the product.

Protect cyinders from physical damage to prevent valve damage or leakage. Move cylinders properly; do not drag, slide, or drop cylinders when transporting. Use adjustable strap wrench to remove tight/rusted caps.Ensure the complete gas system has been checked for leaks before use. Never insert any object into valve cap openings; doing so may damage valve causing leakage.

Gas or liquefied gas are to be used with the appropriate pressure regulating control and high pressure equipment. Suck-back into cylinder may cause rupture. Always use a back flow preventative device in piping. Never lift cylinder by its valve protection cap. Use only in ventilated areas.

Before Use: Move cylinders with a suitable hand truck. Do not drag, slide, or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap in place (where provided) until cylinder is ready for use.
During Use: Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.
After Use: Close main cylinder valve. Replace valve protection cap (where provided). Mark empty cylinders “EMPTY”.

NOTE: Use only DOT or ASME code containers. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information refer to the Compressed Gas Association Pamphlet P-1, Safe Handling of Compressed Gases in Containers. Also see CGA P-9, the Inert Gases, Argon, Air, and Helium; CGA P-14, Accident Prevention in Oxygen Rich and Oxygen Deficient Atmospheres; CGA Safety Bulletin SB-2, Oxygen Deficient Atmospheres.

CONDITIONS FOR SAFE STORAGE: Cylinders should be secured with mounting brackets away from heavily traveled areas. Use oldest cylinders in stock first to prevent full cylinders from being stored for excessive periods of time. Full and empty cylinders should be segregated. Keep cylinder in dry, cool, well ventilated area away from heat, flame, sparks or corrosive chemicals. Compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits. Post “No Smoking or Open Flames” signs in storage or use areas.Cylinders should be moved by suitable hand trucks. Close valve after each use and when empty.Cylinder valve guards or caps should be in place. Cylinder temperature should not exceed 52°C (125°F). Store containers in location free from fire risk and away from any sources of heat and ignition. Keep cylinder away from combustible material. Use equipment rated for cylinder pressure.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	OSHA PEL	ACGIH TLV
Methane	None	1000 ppm
Air (89.1% N2 + 20.9% O2)	See Below	See Below
Oxygen	None	None
Nitrogen	None	None

APPROPRIATE ENGINEERING CONTROLS: Ventilation: Enclosed area must be provided with general or local exhaust ventilation to avoid hazardous conditions. If appropriate, install automatic monitoring equipment to detect the level of oxygen.

INDIVIDUAL PROTECTIVE MEASURES: Safety glasses, work gloves, and safety shoes should be worn when handling high pressure cylinders or hazardous materials.
Respiratory Protection (Specify Type): Use self-contained breathing apparatus in emergency or rescue situations. Maintain oxygen level above 19.5% in the workplace. Use supplied air respiratory protection if oxygen level is below 19.5% or during emergency response to a release of Air. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134) or equivalent State standards.
Eye Protection: Splash goggles, face shields, or safety glasses.
Hand Protection: Wear gloves resistant to tears when handling cylinders of Air.
Body Protection: Use body protection appropriate for task.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless	Upper/lower flammability/explosive limits: No data available
Odor: Odorless	Vapor Pressure: Gas, ambient.
Odor threshold: No data available	Vapor Density (Air=1): 1.2 kg/m3 (0.0749 lb/ft3)
pH: N/A	Relative Density (Water=1): Varies
Melting point/range: N/A	Solubility (in water): 0.0292
Boiling point/range: -194.3°C (-317.8°F)	Partition coefficient (n-octanol/water): N/A
Flash Point: N/A	Auto-ignition temperature: No data available
Evaporation Rate (Butyl Acetate=1): N/A	Decomposition temperature: No data available
Flammability (solid, gas): No data available	Visocity: N/A

SECTION 10 – STABILITY AND REACTIVITY DATA

Reactivity: Refer to possibility of hazardous reactions and/or incompatible materials sections	**Conditions to avoid:** Contact with incompatible materials. Avoid exposing cylinders to extremely high temperatures, which could cause the cylinders to rupture.
Chemical Stability: Normally stable in gaseous state. Air which contains excess oxygen may present the same hazards as Liquid Oxygen and could react violently with organic materials such as oil and grease.	**Incompatible materials:** Fuels may form explosive mixtures in air.
Possibility of hazardous reactions: No data available	**Hazardous Decomposition or Byproducts:** None

SECTION 11 – TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:
NITROGEN: Currently, there are no specific toxicology data available for Nitrogen gas.

OXYGEN:
Cytogenetic Analysis System (hamster lung) 80 pph
TCLo (inhalation-woman) 12 pph for 10 minutes. Teratogenic effects.
TCLo (inhalation-human) 100 pph for 14 hours. Pulmonary effects.

SYMPTOMS/EFFECTS FROM EXPOSURE: Inhalation of Air in high pressure environments, such as underwater diving or hyperbolic chambers can result in symptoms similar to overexposure to pure oxygen. These symptoms include tingling of the fingers and toes, abnormal sensations, and impaired coordination and confusion. Decompression sickness, the "bends", is possible following rapid decompression. Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside.
HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Overexposure to Air may cause the following health effects:

ACUTE: The most significant hazard associated with Air is the pressure hazard. Contact with rapidly expanding gases (which are released under high pressure) may cause frostbite.

CHRONIC: There are currently no known adverse health effects associated with chronic exposure to compressed Air.

TARGET ORGANS: Respiratory system under ambient low pressure conditions. Central nervous system under ambient high pressure conditions.

ACUTE/CHRONIC TOXICITY: The toxicology data currently available for the components of compressed Air present at a level greater than 1 mole % are listed as follows:

NITROGEN: Currently, there are no specific toxicology data available for Nitrogen gas.

OXYGEN:
Cytogenetic Analysis System (hamster lung) 80 pph
TCLo (inhalation-woman) 12 pph for 10 minutes. Teratogenic effects.
TCLo (inhalation-human) 100 pph for 14 hours. Pulmonary effects.

SUSPECTED CANCER AGENT: Air is not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC, and there fore is neither considered to be nor suspected to be a cancer-causing agent by these agencies.

IRRITANCY OF PRODUCT: Air is not an irritant. However, contact with rapidly expanding gases can cause frostbite and damage to exposed skin and eyes.

SENSITIZATION OF PRODUCT: Air is not a sensitizer.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of Air and its components on the human reproductive system.

Mutagenicity: Air is not expected to cause mutagenic effects in humans.
Embryotoxicity: Air is not expected to cause embryotoxic effects in humans.
Teratogenicity: Air is not expected to cause teratogenic effects in humans.
Reproductive Toxicity: Air is not expected to cause adverse reproductive effects in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Overexposure to this gas is unlikely to aggravate existing medical conditions.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce overexposure if air is breathed in high pressure environment (e.g., illness associated with decompression, bends, or caisson disease). Decompression equipment may be required.

BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, Biological Exposure Indices (BEIs) are not applicable for this compound.

CARCINOGENICITY: No data available.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotocity (aquatic and terrestrial): Not harmful to aquatic life under normal conditions of exposure.
Persistence and degradability: No data available
Bioaccumulative potential: No data available
Mobility in soil: No data available

Other Effects: The mixture does not contain any class I or Class II ozone depleting chemicals.

SECTION 13 – DISPOSAL CONSIDERATIONS

Disposal: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to MESA International Technologies, Inc. Do not dispose of locally.

SECTION 14 – TRANSPORTATION INFORMATION

DOT Classification:

Proper Shipping Name: Air, compressed
Class: 2.2
UN/ID No.: UN1002
Label: Non-Flammable Gas, Green Label

IATA Classification:

Proper Shipping Name: Air, compressed
Class: 2.2
UN/ID No.: UN1002
Label: Non-Flammable Gas, Green Label

Environment hazard: No

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code: N/A

SPECIAL PRECAUTIONS FOR USER: Avoid transport on vehicles where the load space is not separated from driver's compartment. Ensure that transporter is aware of the potential hazards of the load and knows what to do in event of an emergency. Contact supplier for complete transportation information.

SECTION 15 – REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: Air is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.

U.S. SARA THRESHOLD PLANNING QUANTITY: Not applicable.

U.S. CERCLA REPORTABLE QUANTITIES (RQ): Not applicable.

CANADIAN DSL/NDSL INVENTORY STATUS: The components of Air are on the DSL Inventory.

U.S. TSCA INVENTORY STATUS: Air is listed on the TSCA Inventory.

OTHER U.S. FEDERAL REGULATIONS: Not applicable.

U.S. STATE REGULATORY INFORMATION: Air is covered under specific State regulations, as follows:
Alaska - Designated Toxic and Hazardous Substances: No.
California - Permissible Exposure Limits for Chemical Contaminants: No. Florida - Substance List: No.
Illinois - Toxic Substance List: No. Kansas - Section 302/313 List: No. Massachusetts - Substance List: No.
Michigan - Critical Materials Register: No. Minnesota - List of Hazardous Substances: No.
Missouri - Employer Information/Toxic Substance List: No. New Jersey - Right to Know Hazardous Substance List: Air.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.
Pennsylvania - Hazardous Substance List: No. Rhode Island - Hazardous Substance List: No.
Texas - Hazardous Substance List: No. West Virginia - Hazardous Substance List: No.
Wisconsin - Toxic and Hazardous Substances: No.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): Air and its components are not on the California Proposition 65 lists.

LABELING:
WARNING: Contains gas under pressure; may explode if heated. May support combustion. Use in accordance with Safety Data Sheets. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Leaking gas fire: Do not extinguish unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. Do not open valve until prepared to use. Always use a back flow preventative device in piping. Protect from sunlight. Store in a well-ventilated place. DO NOT REMOVE THIS PRODUCT LABEL. FIRST-AID: IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SECTION 16 – OTHER INFORMATION

Information contained in this data sheet is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable. But the accuracy and completeness thereof, is not guaranteed and no warranty of any kind, either expressed or implied, is made with respect thereto. Since MESA Specialty Gases and Equipment Division of MESA International Technologies, Inc. shall have no control over the use of the product described herein, we assume no liability for loss or damage incurred from the proper or improper use of such product.

HISTORY:

Date of printing:	5/21/2015
Date of issue/revision:	5/21/2015
Date of previous issue:	12/1/2014