MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT IDENTIFICATION

PRODUCT NAME: Air, compressed

CHEMICAL NAME: Air

MANUFACTURER: Air Products and Chemicals, Inc.

7201 Hamilton Boulevard

Allentown, PA 18195-1501

PRODUCT INFORMATION: (800) 752-1597

MSDS NUMBER: 1002 **REVISION:** 8

REVIEW DATE: May 1999 **REVISION DATE:** May 1999

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

Air is sold as a pure product >99%.

CAS NUMBER: 132259-10-0

EXPOSURE LIMITS:

OSHA: PEL = None **ACGIH:** TWA/TLV = None **NIOSH:** IDLH = None

Comments: Before using for any breathing application, ensure the cylinder label states "breathing quality."

Atmospheric air that is compressed is composed of Nitrogen, 78%, Oxygen, 21%, and Argon, 0.9%. Compressed air is also synthetically produced by mixing 79% Nitrogen and 21%Oxygen. The actual oxygen content can range between 19.5% and 23.5%.

SECTION 3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

This product is a nontoxic, odorless, colorless, nonflammable compressed gas stored in cylinders at high pressure. High pressure gas may accelerate combustion.

EMERGENCY TELEPHONE NUMBERS

(800) 523-9374 Continental U.S., Canada, and Puerto Rico

(610) 481-7711 other locations

ACUTE POTENTIAL HEALTH EFFECTS:

ROUTES OF EXPOSURE:

EYE CONTACT: No adverse effect.

INHALATION: At atmospheric pressure, air has no adverse health effects.

SKIN CONTACT: No adverse effect.

TARGET ORGANS: None

POTENTIAL HEALTH EFFECTS OF REPEATED EXPOSURE:

ROUTE OF ENTRY: Inhalation

SYMPTOMS: None

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None

CARCINOGENICITY: This product is not listed as a carcinogen or potential carcinogen by NTP, IARC, or OSHA.

SECTION 4. FIRST AID MEASURES

EYE CONTACT: Not applicable

INHALATION: Not applicable

SKIN CONTACT: Not applicable

NOTES TO PHYSICIAN: None

SECTION 5. FIRE FIGHTING MEASURES

FLASH POINT: AUTOIGNITION: FLAMMABLE RANGE:

Not applicable Not applicable Nonflammable

EXTINGUISHING MEDIA: Product is nonflammable, but will support combustion. Use extinguishing media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING INSTRUCTIONS: Evacuate all personnel from area. If possible, shut off flow of air which is supporting the fire. If possible, remove cylinders from fire area or cool with water. SCBA may be required by rescue workers.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Compressed air at high pressures may accelerate combustion. Most cylinders are designed to vent contents when exposed to elevated temperatures. Pressure in a cylinder can build up due to heat and it may rupture if pressure relief devices should fail to function.

HAZARDOUS COMBUSTION PRODUCTS: None

SECTION 6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Evacuate immediate area. Shut off source of leak if possible. Isolate any leaking cylinder. If leak is from container, pressure relief device or its valve, contact your supplier. If leak is in user's system, close cylinder valve, safely vent pressure before attempting repairs.

SECTION 7. HANDLING AND STORAGE

STORAGE: Store cylinders in a well-ventilated, secure area, protected from the weather. Cylinders should be stored upright with valve outlet seals and valve protection caps in place. Do not allow storage temperature to exceed 125 ° F (52 ° C). Storage should be away from heavily traveled areas and emergency exits. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time.

HANDLING: Do not drag, roll, slide or drop cylinder. Use a suitable hand truck designed for cylinder movement. Never attempt to lift a cylinder by its cap. Secure cylinders at all times. Use a pressure reducing regulator to safely discharge gas from cylinder. Use a check valve to prevent reverse flow into cylinder. Use piping and equipment adequately designed to withstand pressures to be encountered. Never apply flame or localized heat directly to any part of the cylinder. Do not allow any part of the cylinder to exceed 125 ° F (52 ° C). Once cylinder has been connected to process, open cylinder valve slowly and carefully. If user experiences any difficulty operating cylinder valve, discontinue use and contact supplier. Never insert an object (e.g.,

wrench, screwdriver, etc.) into valve cap openings. Doing so may damage valve causing a leak to occur. Use an adjustable strap-wrench to remove over-tight or rusted caps.

This product is compatible with all common materials of construction. Pressure requirements should be considered when selecting materials and designing systems.

SPECIAL PRECAUTIONS: Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, Inc. (telephone 703-412-0900) pamphlet CGA P-1, *Safe Handling of Compressed Gases in Containers*. Local regulations may require specific equipment for storage or use.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

VENTILATION: Not required

RESPIRATORY PROTECTION:

Emergency Use: Not required

EYE PROTECTION: Safety glasses are recommended.

SKIN PROTECTION: Leather work gloves recommended when handling cylinders.

OTHER PROTECTIVE EQUIPMENT: Safety shoes recommended when handling cylinders.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE, ODOR AND STATE: Colorless, odorless and tasteless gas at normal temperature and pressure.

MOLECULAR WEIGHT: 28.975

BOILING POINT (At 1 atm)**:** -317.8 ° F (-194.3 ° C)

SPECIFIC GRAVITY (also called vapor density) (Air =1)**:** 1.00

FREEZING POINT / MELTING POINT: -357.2 ° F (-216.2 ° C)

VAPOR PRESSURE (At 70 ° F (21.1 ° C))**:** Not applicable

GAS DENSITY (At 70 ° F (21.1 ° C) and 1 atm)**:** 0.0749 lb/ft^3 (1.2 kg/m^3)

SOLUBILITY IN WATER (Vol./Vol. at 32 ° F (0 ° C) and 1 atm)**:** 0.0292

SECTION 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable

CONDITIONS TO AVOID: Cylinders should not be exposed to temperatures in excess of 125 ° F (52 ° C). Avoid the use of oil in systems at full cylinder pressure.

INCOMPATIBILITY (Materials to Avoid): None

REACTIVITY:

A) HAZARDOUS DECOMPOSITION PRODUCTS: None

B) HAZARDOUS POLYMERIZATION: Will not occur

SECTION 11. TOXICOLOGICAL INFORMATION

LC_{50} (Inhalation): None

LD_{50} (Oral): None

LD_{50} (Dermal): None

SKIN CORROSIVITY: None

ADDITIONAL NOTES: Air is nontoxic and is necessary to support life. Inhalation of air in high pressure environments can result in symptoms similar to overexposure to oxygen. These include tingling of fingers, impaired coordination, and confusion. Decompression sickness (Bends) is possible following rapid decompression. Decompression equipment may be required if exposed to high pressure environment.

SECTION 12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY: Not applicable

MOBILITY: Not applicable

PERSISTENCE AND BIODEGRADABILITY: Not applicable

POTENTIAL TO BIOACCUMULATE: Not applicable

REMARKS: No adverse ecological effects are expected. Air does not contain any Class I or Class II ozone depleting chemicals.

SECTION 13. DISPOSAL CONSIDERATIONS

UNUSED PRODUCT / EMPTY CONTAINER: Return container and unused product to supplier. Do not attempt to dispose of residual or unused quantities.

DISPOSAL INFORMATION: For emergency disposal, secure the cylinder and slowly discharge gas to the atmosphere in a well ventilated area or outdoors.

SECTION 14. TRANSPORT INFORMATION

DOT SHIPPING NAME: Air, compressed

HAZARD CLASS: 2.2

IDENTIFICATION NUMBER: UN1002

SHIPPING LABEL(s): Nonflammable Gas

PLACARD (When required): Nonflammable Gas

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure upright position in a well-ventilated truck. Never transport in passenger compartment of a vehicle. Ensure cylinder valve is properly closed, valve outlet cap has been reinstalled, and valve protection cap is secured before shipping cylinder.

CAUTION: Compressed gas cylinders shall 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 the owner's written consent is a violation of federal law (49 CFR 173.301).

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (NAERG #): 122

SECTION 15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

EPA - ENVIRONMENTAL PROTECTION AGENCY

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980

(40 CFR Parts 117 and 302)

Reportable Quantity (RQ): None

SARA TITLE III: Superfund Amendment and Reauthorization Act

SECTIONS 302/304: Emergency Planning and Notification (40 CFR Part 355)

Extremely Hazardous Substances: Air is not listed.

Threshold Planning Quantity (TPQ): None

Reportable Quantity (RQ): None

SECTIONS 311/312: Hazardous Chemical Reporting (40 CFR Part 370)

IMMEDIATE HEALTH: No PRESSURE: Yes

DELAYED HEALTH: No REACTIVITY: No

FIRE: No

SECTION 313: Toxic Chemical Release Reporting (40 CFR Part 372)

This product does not require reporting under Section 313.

CLEAN AIR ACT:

SECTION 112 (r): Risk Management Programs for Chemical Accidental Release

(40 CFR PART 68)

This product is not listed as a regulated substance.

Threshold Planning Quantity (TPQ): None

TSCA: Toxic Substance Control Act

This product is listed on the TSCA inventory.

OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

29 CFR Part 1910.119: Process Safety Management of Highly Hazardous Chemicals

This product is not listed in Appendix A as a highly hazardous chemical.

Threshold Planning Quantity (TPQ): None

STATE REGULATIONS:

CALIFORNIA:

Proposition 65: This product is not a listed substance which the State of California requires warning under this statute.

SECTION 16. OTHER INFORMATION

NFPA RATINGS: HMIS RATINGS:

HEALTH: 0 HEALTH: 0

FLAMMABILITY: 0 FLAMMABILITY: 0

REACTIVITY: 0 REACTIVITY: 0

PROTECTION: 0