

AMEREX CORPORATION
 7595 Gadsden Highway
 P. O. Box 81
 Trussville, Alabama 35173-0081

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

HEALTH: 1
 FLAMMABILITY: 0
 REACTIVITY: 0

PART I What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

TRADE NAME (AS LABELED):

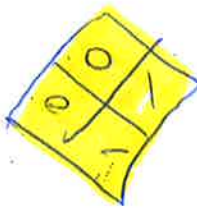
NITROGEN

MANUFACTURER'S NAME AND ADDRESS:

AMEREX CORPORATION
 P. O. BOX 81

EMERGENCY PHONE:
BUSINESS PHONE:
DATE OF PREPARATION:

Trussville, AL 35173-0081
 1-800-424-9300 (CHEMTREC)
 (205) 655-3271
 August 24, 1995



2. COMPOSITION and INFORMATION on INGREDIENTS

CHEMICAL NAME	CAS #	% wt	ACSDH		OSHA		OTHER	EXPOSURE LIMITS IN AIR
			TLV ppm	STEL ppm	PEL ppm	STEL ppm		
Nitrogen	772-72-8	100						

Nitrogen is classified as a "simple asphyxiant", without other significant physiological effects. A minimum oxygen concentration of 19.5% must be maintained in the work area.

NE = Not Established See Section 16 for Definitions of Terms Used.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This product is an odorless, colorless gas which merely presents pressure hazards. Though the measure is not flammable, if the product's cylinders are exposed to high temperatures, they may rupture violently and cause a high-pressure release of gas.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant route of exposure for this product is inhalation.

IRRITATION: Nitrogen is a simple asphyxiant which exerts no other physiological effect beyond oxygen deprivation. Symptoms of exposure to oxygen deficient environments include dizziness, headache, loss of consciousness, and under some circumstances, death.

CONTACT WITH SKIN or EYES: Contact with non-pressurized gases may cause burns or frostbite. No other health effects are known from contact with Nitrogen.

HEALTH EFFECTS OR RISKS FROM EXPOSURE IN LIQUID FORM: This product poses low, acute health risks.

ACUTE: This gas presents a slight risk of causing acute health effects other than asphyxiation. The most acute effects would be harm to the skin or eyes when in contact with rapidly expanding gases. Death may occur in atmospheric concentrations of this product.

CHRONIC: Nitrogen is not known to cause any chronic illnesses or diseases.

HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0

PROTECTIVE EQUIPMENT

eyes	respiratory	hands	body
			SEE SECTION 8

For details consult labels

PART II What should I do if a hazardous situation occurs?

4. FIRST-AID MEASURES

Rescuers should not attempt to relieve victims of exposure to this product without adequate personal protective equipment. At a minimum, Self-Contained Breathing Apparatus should be worn during rescues.

Remove victims to fresh air, as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen.

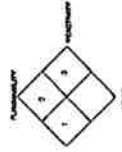
In case of frostbite, place the frostbitten part in warm water. If warm water is not available, or impractical to use, wrap the affected parts gently in blankets.

If exposure causes obvious distress, victim(s) and rescuers must be taken for medical attention. Take copy of label and MSDS to physician or health professional with victim.

5. FIRE-FIGHTING MEASURES

FLASH POINT (°C, inverting): Not applicable.
AUTIGNITION TEMPERATURE (°C): Not applicable.
FLAMMABLE LIMITS (in air by volume, %): Lower: None; Not applicable. Upper: None; Not applicable.

NIPPA RANKING



FIRE EXTINGUISHING MATERIALS: Not normally ignitable. Use extinguishing media appropriate for surrounding material.

Water Soluble: YES
Water Insoluble: YES
Carbon Dioxide: YES
Other: Any "g" class

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, the cylinder may rupture violently, causing a high pressure release of gases.

Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Keep unasked cylinders cool using a water spray. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. In case of a spill, clear the affected area, and protect people. At a minimum, Self-Contained Breathing Apparatus and heavy gloves should be worn by responders. For uncontrolled releases, monitor the surrounding area for oxygen content. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Care should be taken to avoid any rapidly expanding gases. Ventilate the affected area. Attempt to shut-off the release by tightening the main valve. If this does not stop the release (or it is not possible to reach the valve), allow the gas to release in place, or remove the container to a safe area and allow the gas to be released there.

PART III How can I prevent hazardous situations from occurring?

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash hands after handling chemicals. Do not eat or drink while handling chemicals. Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of the product could occur without any significant warning symptoms.

STORAGE AND HANDLING PRACTICES: All employees who handle this material should be trained to handle it safely. Keep cylinders in dry, well-ventilated areas which are away from sources of heat. Do not exceed 48 °C storage temperature. Keep cylinders secure.

Before Use: Move cylinders with suitable hand-truck. Secure cylinders firmly. Leave the valve protection cap in place until cylinder is ready for use.

During Use: Use designated regulators, CGA fittings, and other support equipment. Do not use adapters. Do not use oil or grease on gas handling fittings or equipment. All equipment must be properly grounded and bonded.

After Use: Close main cylinder valve. Replace valve protection cap. Mark empty cylinders "EMPTY".

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 8 (Accidental Release Measures). Make certain application equipment is located and tagged-out safely. Always use the product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Use a mechanical fan or vent area to outside.
RESPIRATORY PROTECTION: None normally required for use. Use supplied air respiratory protection if oxygen levels are below 19.5%.

EYE PROTECTION: Safety glasses.

HAND PROTECTION: Mechanically resistant gloves should be worn when moving cylinders.

BODY PROTECTION: Use body protection appropriate for task.

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: Protect cylinders against physical damage. Store in cool, dry, well-ventilated areas, away from direct sunlight. Do not allow areas where cylinders are stored to exceed 51.7 °C (125 °F). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use only DOT or ASME code containers. Close valve after each use and when empty. Nitrogen cylinders must not be recharged except by or with the consent of Amerex Corporation. For additional information refer to the Compressed Gas Association Pamphlet P-1, Safe Handling of Compressed Gases in Containers.

9. PHYSICAL and CHEMICAL PROPERTIES

GAS DENSITY: 0.7176, 1.53 kg/m³
SPECIFIC GRAVITY (LIQUID): 1.15
SOLUBILITY IN WATER: 0.023 cm³ / cm³ water
VAPOR PRESSURE: mm Hg @ 20 °C: Not applicable.
Internal pressure in a cylinder will depend upon the volume of gas present in the cylinder. Determine internal pressure with a pressure gauge.

APPEARANCE AND COLOR: The product is an odorless, compressed gas.
HOW TO DETECT THIS SUBSTANCE (human perception): The product does not have any specific warning properties.

EVAPORATION RATE (liquid): Not applicable.
MELTING POINT or RANGE: -209.5 °C
BOILING POINT: -195.8 °C
DELIQUESCENCE: Not applicable.
HAZARDOUS TO AMBIENT: Not applicable.

10. STABILITY and REACTIVITY

STABILITY: Stable.
REGULATORY PRODUCTS: Not applicable.
HAZARDOUS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Nitrogen is non-combustible and inert and may be combined in systems with other gases and vapors. The product is stable when the pressure is released.
HAZARDOUS TO AMBIENT: Not applicable.
HAZARDOUS TO WATER: Not applicable.
HAZARDOUS TO AIR: Not applicable.
HAZARDOUS TO OZONE: Not applicable.
HAZARDOUS TO SOILS: Not applicable.
HAZARDOUS TO PLANTS AND ANIMALS: Not applicable.
HAZARDOUS TO HUMANS: Not applicable.
HAZARDOUS TO AQUATIC LIFE: Not applicable.

PART IV

is there any other useful information about this material?

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Nitrogen is a simple asphyxiant gas, and as such, has no specific inherent toxicological or physiological hazards.
SUSPECTED CANCER AGENT: Nitrogen is not found on the following lists: FEDERAL OSHA 2 LIST, NTP, CA/JOSHUA, IARC.
IRRITANCY OF PRODUCT: Contact with expanding gases may cause skin and eye irritation.
SENSITIZATION TO THE PRODUCT: The product is not known to cause sensitization.
REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.
Male: Nitrogen is not known to cause mutagenic effects.
Female: Nitrogen is not known to cause teratogenic effects.
Reproductive Toxicity: Nitrogen is not known to cause reproductive toxicity effects.
Mutagenicity: Nitrogen is not known to cause mutagenic effects.
Teratogenicity: Nitrogen is not known to cause teratogenic effects.
Reproductive Toxicity: Nitrogen is not known to cause reproductive toxicity effects.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generations. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generations. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.
RECOMMENDATIONS TO PHYSICIANS: Treat patient symptoms. Administer oxygen, as necessary.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: No adverse environmental consequences are expected. Nitrogen occurs naturally in the environment. The gas will degrade rapidly in well ventilated areas.
EFFECT OF MATERIAL ON PLANTS or ANIMALS: None currently known.
EFFECT OF CHEMICAL ON AQUATIC LIFE: Not expected to harm aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations.
OTHER REGULATORY INFORMATION: Not applicable.
EPA WASTE NUMBER: Not applicable.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.
PROPER SHIPPING NAME: Nitrogen, Compressed.
HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-flammable gas)
IDENTIFICATION NUMBER: UN 1086
PACKING GROUP: Not applicable.
DOT LABELS REQUIRED: Nonflammable Gas.
EMERGENCY RESPONSE GUIDE NUMBER: 12
HAZARD ZONE: Not applicable.

THIS MATERIAL IS DEFINED AS HAZARDOUS BY TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS. Refer to above information for Canadian Shipments.

15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: Nitrogen is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act.
SARA Inventory Planning Number: Not applicable.
SARA Inventory Status: Nitrogen is listed on the TSCA Inventory.
OSHA REPORTABLE QUANTITY (RQ): Not applicable.
OTHER FEDERAL REGULATIONS: Not applicable.
STATE REGULATORY INFORMATION: Chemicals in this product are covered under specific State regulations, as denoted below.

State	Designated Toxic and Hazardous Substances (None)	Other Federal Regulations	Other State Regulations
Alabama	None	None	None
California	None	None	None
Colorado	None	None	None
Connecticut	None	None	None
Delaware	None	None	None
District of Columbia	None	None	None
Florida	None	None	None
Georgia	None	None	None
Hawaii	None	None	None
Idaho	None	None	None
Illinois	None	None	None
Indiana	None	None	None
Iowa	None	None	None
Kansas	None	None	None
Kentucky	None	None	None
Louisiana	None	None	None
Maine	None	None	None
Maryland	None	None	None
Massachusetts	None	None	None
Michigan	None	None	None
Minnesota	None	None	None
Mississippi	None	None	None
Missouri	None	None	None
Montana	None	None	None
Nebraska	None	None	None
Nevada	None	None	None
New Hampshire	None	None	None
New Jersey	None	None	None
New Mexico	None	None	None
New York	None	None	None
North Carolina	None	None	None
North Dakota	None	None	None
Ohio	None	None	None
Oklahoma	None	None	None
Oregon	None	None	None
Pennsylvania	None	None	None
Rhode Island	None	None	None
South Carolina	None	None	None
South Dakota	None	None	None
Tennessee	None	None	None
Texas	None	None	None
Utah	None	None	None
Vermont	None	None	None
Virginia	None	None	None
Washington	None	None	None
West Virginia	None	None	None
Wisconsin	None	None	None
Wyoming	None	None	None

CALIFORNIA PROPOSITION 65: Nitrogen is not on the California Proposition 65 list.
LABELING (Ingredient Statements): WARNING: Compressed gas under pressure. Store in a cool, dry location. Use only in a closed system which is designed to handle the cylinder pressure.
TARGET ORGANS: Respiratory system, skin, eyes.
HMIS SYMBOLS:

16. OTHER INFORMATION

PREPARED BY: CHEMICAL SAFETY ASSOCIATES, Inc.
9163 Chassapeke Drive, San Diego, CA 92123-1002
619/565-0302

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear in this SDS. Some of these which are commonly used include the following:

CAAS P: This is the Chemical Abstract Service Number which uniquely identifies each compound. It is used for computer-aided searching.

EXPOSURE LIMITS IN AIR:

TLV - Threshold Limit Value: An airborne concentration of a substance which requires exposure under which the majority of workers are free from chronic health effects. It is recommended by ACGIH, NIOSH, and other health agencies. It is expressed by OSHA, the 1973 Short Term Exposure Limit, and the Occupational Ceiling Limit. Skin absorption effects must also be considered.

OSHA - U.S. Occupational Safety and Health Administration: The federal agency which enforces the Occupational Safety and Health Act. Its regulations are contained in the Code of Federal Regulations, Title 29, Part 1910. The OSHA - Health Hazard Division is responsible for the development and promulgation of air quality standards for hazardous substances. It is also responsible for the development and promulgation of air quality standards for air pollutants.

NIOSH - U.S. National Institute for Occupational Safety and Health: The federal agency which is responsible for the research and development of air quality standards for hazardous substances. It is also responsible for the research and development of air quality standards for air pollutants.

AIR POLLUTANT: Any material which is emitted into the atmosphere in such a manner, quantity, or concentration as to be injurious to the public health or welfare, or the environment, or to obstruct or interfere with the clear enjoyment of life or property.

HAZARDOUS TO WATER: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.

HAZARDOUS TO PLANTS AND ANIMALS: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.

HAZARDOUS TO HUMANS: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.

HAZARDOUS TO AQUATIC LIFE: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.

HAZARDOUS TO SOILS: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.

HAZARDOUS TO AIR: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.

HAZARDOUS TO ENVIRONMENT: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.

HAZARDOUS TO PROPERTY: A material which, if discharged into the environment, is expected to cause or contribute to the death or injury of humans, animals, or plants, or to the damage of property, or to the obstruction or interference with the clear enjoyment of life or property.