



# **Hazard Communication (Right to Know) Program**

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## FORWARD

OSHA published the original Hazard Communication Standard in November of 1983 requiring manufacturers and importers to evaluate the hazards of chemicals they produce and distribute. The Standard required that the information about the hazards and associated protective measures be disseminated on container labels and material safety data sheets (MSDSs). All employers with exposed employees were required to provide access to the labels and MSDSs, and to train workers. Since its inception, the Standard has been amended many times, but the intent to introduce chemical information into the work place remains the same.

Today there are nearly 650,000 hazardous chemicals used in work places throughout the United States. Many of these chemicals are harmless, but many others pose extreme danger to our health. As employees we have a right-to-know the hazards and the identities of the chemicals that we are exposed to in our daily work lives.

This document gives employees of the NMSU Grant campus information about our Hazard Communication Program and the tools provided to ensure safety with work place chemicals. Consider as you read this document that safety is a responsibility we all share, and that an accident free workplace should be one of our goals.



Felicia Casados, President NMSU Grants campus

October 14, 2008

## **I. POLICY**

New Mexico State University (NMSU) is required to maintain an effective "Hazard Communication Program" in accordance with the current Occupational Health and Safety Act regulation 29 CFR 1910.1200.

## **II. PURPOSE**

The above noted regulation is set forth "to ensure that the hazards of chemicals produced or imported by chemical manufacturers or importers are evaluated, and that information concerning their hazards is transmitted to affected employers and employees. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and personnel training."

This program, as well as the regulation, is otherwise referred to as the "Right to Know Law", which in effect is designed to provide knowledge, warning, protection and training to employees who may be exposed to the hazards of chemicals and other materials while on the job.

## **III. RESPONSIBILITY**

Katrina Doolittle, Director Environmental Health and Safety, (575) 646-3327, is designated as having responsibility for the administration of the NMSU Hazard Communication Program. EH&S will act as the general HazCom Program Coordinator for NMSU. Each university branch, department, office, division, campus, or component that uses chemicals in its work areas on a regular basis shall appoint a departmental HazCom Standard Coordinator (HCS Coordinator) and establish a written program for the affected employees. The EH&S office shall request and review these subsidiary programs on an annual basis. The Facilities Manager, Dan Christmann, is the HCS Coordinator for the Grants campus.

All personnel (faculty, staff, technical assistants and certain matriculating students) will fully participate in the program as it may apply to their work area and work responsibility. Each supervisor shall ensure that those employees and areas under his/her supervision comply with this program.

The "Hazard Communication Program" will consist of five basic components:

1. Inventory and audit of hazardous chemicals and materials.
2. Labels and labeling of hazardous chemicals and materials containers.
3. Material Safety Data Sheet (MSDS) maintenance, distribution, availability and locations.
4. Personnel training and information, both general and specific.
5. A written "Hazard Communication Program" as herewith prescribed.

The written "Hazard Communication Program" for the Grants Campus with its associated inventory list(s), records, materials, etc., will be maintained and located in the Facility Manager's office. Personnel may review the program and chemical listing at this location. A copy of this written "Hazard Communication Program" may also be reviewed on the NMSU Grants website (<http://grants.nmsu.edu/facultystaff.html>) and on the WebCT Safety 101 course site.

## **IV. MATERIALS, INVENTORY, AUDITS**

An initial inventory of all chemicals and materials will be made of all new work areas and facilities. This inventory will be entered in the NMSU HazCom Web Database which can be accessed through the University EH&S web site. An annual audit, of the HazCom Inventory, will be conducted thereafter. All hazardous chemicals and materials will be identified and listed. A copy of the HazCom Inventory for each work area will be kept with the MSDSs for that area (or in a secure location if the MSDSs are in the public areas) and the updated inventory lists shall be provided to the University EH&S at least annually.

Each listing will note at least the following information:

1. name & contact information for persons responsible for the area or chemicals
2. date the list was compiled or updated
3. building & room/area location of the work or storage area
4. name and hazard(s) of the chemical or product.
5. typical maximum quantity of the chemical or material
6. general location within the work area where material is kept
7. name of the manufacturer or supplier (must match the MSDS).

A system will be maintained to add any newly introduced hazardous chemicals or materials to the inventory. Typically the person responsible for material will update the list for the specific work area and ensure that the master list is updated. The supervisor for the area will ensure that the list is updated.

## **V. MATERIAL SAFETY DATA SHEETS (MSDS)**

An MSDS will be provided on all required chemicals and materials used within the department.

There will be a master inventory of all required hazardous chemicals and materials which will be located on the University EH&S HazCom Web Database. The office will maintain a Master copy of chemical inventory from all subsidiary NMSU HazCom Programs. Each Department will annually forward their information to the NMSU Environmental Health and Safety. All departments and users will obtain and maintain MSDSs for each hazardous material in use or storage at NMSU Grants.

MSDSs as well as the inventory of chemicals and materials used in a specific work area or for a specific work assignment will be available to personnel during their work period. Areas at NMSU Grants where MSDSs and inventories are located are:

1. The Facility Managers Office: Mechanical, Garage, & Administration Offices
2. Room 110, Chemistry Lab
3. Room 50, Electronics Lab
4. Room 51, Welding Lab
5. Room 52, Automotive Lab

The inventory listing and audits will be used to ascertain that there is an MSDS as may be required for each chemical or material item and that all containers are properly labeled and stored.

In the event an MSDS is not available or should a new chemical or material be introduced for use without a required MSDS, the immediate supervisor should be promptly notified. That supervisor and/or HazCom Coordinator for the area will contact the manufacture or supplier and obtain the MSDS for the product. If the MSDS can not be obtained and EH&S has been notified, generic safety data may be substituted.

## **VI. LABELS AND LABELING**

All hazardous chemicals or materials on hand or received must have a label that will specify at least:

1. The chemical name.
2. Any specific warning or other hazard information.
3. Identification of the manufacturer or supplier and address.

A hazardous chemical or material label will not be removed from its container, nor will such a label be defaced.

Should it become necessary for a label to either be introduced by the department or replaced on a hazardous chemical or material container, such a label will display the identification and hazard information noted in the paragraph above. The label will follow the National Fire Protection Association Hazard Identification (NFPA 704) System as detailed in (Appendix A).

All containers of hazardous chemicals or materials will be received, and the label assured to be affixed on each and all containers by Staff, Faculty, Graduate and Undergraduate Students that have received HazCom training.

It will be the responsibility of each HCS Coordinator to ensure that all secondary containers are properly labeled with a duplicate of the manufacturer's label or a department's label as noted above. (The HCS can be contacted for replacement labels.)

## VII. INFORMATION AND TRAINING

All personnel will be informed of the "Hazard Communication Program"/"Right to Know Law" annually, and/or at time of initial assignment and annually thereafter.

Hazard Communication and MSDS training at the Grants campus will be accomplished via WebCT. All staff, faculty and students requiring this training will be entered in the WebCT by the Facilities Manager. Training will be accomplished by logging in and taking the course as a student would any other WebCT course. Each course of instruction is comprised of a PowerPoint Presentation, a ten question quiz, and the policy if applicable. The Facilities Manager will periodically download quiz information and enter it in a local database as proof that training has taken place.

General program information and training will be accomplished by WebCT and will cover the contents of this program to include a review of the following.

1. NMSU (Employer) policy statement (Part I of this document).
2. The basic definition of the regulation (Part II of this document).
3. Statements of responsibility, both program and personnel (Part III of this document).
4. Information relating to general labels and placards (Part VI of this document and information in appendices).
5. Description of MSDSs and how to read all sections (see example in Appendix B).
6. Location and availability of the written hazard communication program, MSDS master and locations, and chemical listing (Part V of this document).
7. Definition of hazardous chemicals or materials (see data in Appendix C & D):
  - a. Hazardous chemicals
  - b. Health hazard
  - c. Physical hazard
8. Steps that department personnel can take to lessen or prevent exposure to hazardous chemicals or materials, i.e., knowledge of chemicals, storage, posting, personal protective equipment, chemical loads, warnings, eye wash and safety showers, training, etc.
9. Methods and observation techniques use to determine the presence or release of hazardous chemicals or materials in a work area, i.e., flame or fire, smell or odor, fumes, etching, color, irritation, etc.
10. The emergency procedure to take in the event there is exposure to a hazardous chemical.
11. Notice of hazardous chemicals or materials in an individual's work area.

## **VIII. NON-ROUTINE WORK OR TASKS**

Periodically, personnel may be required to perform non-routine work or tasks requiring the use of hazardous chemicals, materials or work in associated hazardous locations. The HazCom Standard (HCS) Coordinator will be informed about such projects prior to starting the operation.

The HSC Coordinator will complete (or arrange) a hazard analysis of the task and ensure that each affected individual is given information about the chemicals, materials, or exposure of such activity. Such information shall include:

1. Specific hazards that may be associated with the chemical or material.
2. Protective and other safety measures to be taken.
3. Measures the department is taking to lessen or prevent hazards, i.e., ventilation, respirators, storage, safety watch personnel, postings and barriers, fire extinguishers, other personal protective equipment, etc.
4. Review of the chemical or material, MSDS or other technical information applicable to the work.
5. Review emergency procedures to be taken.

## **IX. INFORMING CONTRACTORS**

It will be the responsibility of the HCS Coordinator to provide contractors with the following information:

1. Any hazardous chemicals to which they may be exposed while on the site.
2. Precautions and controls to be taken to lessen or prevent possible exposure by use of appropriate protective measures.
3. The HCS Coordinator will also be responsible for contacting each and all contractors before work is started to gather and disseminate any information concerning chemical hazards that the contractor may be bringing onto the worksite. It will be the responsibility of any department official initiating a work or construction contract to notify the HCS Coordinator of such contract, name of contractor, starting date, and type work to be performed.
4. Additionally, the HCS Coordinator will ensure that contractors bringing chemicals or hazardous materials onto NMSU property also have access to a list of the hazardous materials and MSDS sheets.

## **X. PROGRAM MAINTENANCE - OTHER FUNCTIONS**

### Purchasing

It is the responsibility of each department to request an MSDS when ordering chemicals or materials. This can be done easily by entering the phrase “Clause #54” in the comments section when submitting a purchase request to Alice. (When entered into Banner, the system will put: “Material Safety Data Sheets must be provided if applicable” on the Purchase Order.)

### Other supplied chemicals or materials:

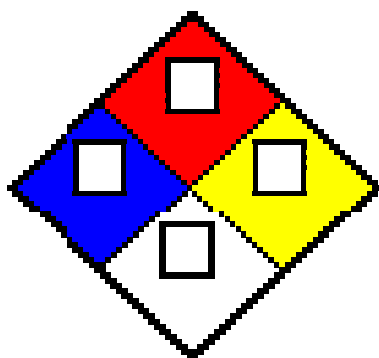
No chemical or material requiring a MSDS will be introduced into the department or any work area of the department by petty cash purchase, supplier samples or other means without the knowledge of the HCS Coordinator.

## APPENDIX A – NFPA LABEL INFORMATION

### NFPA 704 Hazard Rating System

The National Fire Protection Association (NFPA 704) system uses a diamond-shaped diagram of symbols and numbers to indicate the degree of hazard associated with a particular chemical or material. These diamond-shaped symbols are placed on containers of chemicals or materials to identify the degree of hazard associated with the chemical or material.

The diagram identifies three color-coded categories of hazard for each material:



- **health hazard (blue sections),**
- **flammability (red sections),**
- **reactivity (yellow sections), and**
- **other hazard information (white section).**

Each category is divided in five levels of hazard potential with

- **zero (0)** used to indicate no special hazards and
- **four (4)** for severe or extreme hazard potential.

The degrees of hazard in each of these categories are given as follows:

**Health** - The degree of health hazard of a chemical or material is based on the form or condition of the material, as well as its inherent properties (NFPA ratings). The degree of health hazard of a material should indicate the degree of personal protective equipment required for working safety with the material:

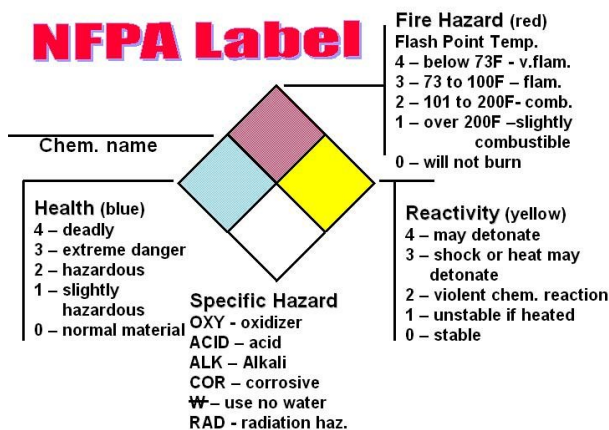
- a. **A rating of 1** is for **slightly hazardous (toxic) material** which require only minimal protection (for example, safety glasses and gloves) in addition to normal work clothing to work with safely
- b. **A rating of 2** is for **moderately toxic or hazardous material** which require additional PPE or equipment (e.g. chemical goggles, lab/work smock, local ventilation) in addition to that required for less toxic material. Consult the MSDS for specific health hazard and proper PPE to use with this material.
- c. **A rating of 3 or 4** is for **highly to extremely toxic (deadly) material (and any carcinogen, mutagen, or teratogen)**. These materials will require specialized equipment (e.g. respirator (or exhaust hood), full face shield, rubber apron, specialized glove, handling tongs, etc) beyond that required for moderately toxic material. You must consult the MSDS and/or other safety information to determine the hazard (acute or chronic) and the proper PPE and engineering controls to safely use of this material.

**Flammability** - The flammability hazards deal with the degree of susceptibility of the material to ignite and burn. The form or condition of the materials, as well as their properties, affects the extent of the hazard. Many hazardous materials such as acetone and gasoline, have a flash point (ignition temperature) far below freezing and will readily ignite with a spark if the vapor concentration is sufficient. A low rating of **1** is for material with a flash point **above 200F** while more hazardous ratings of **2, 3, and 4** are for materials with **respective flash point below 200, 100 and 73 F**.

**Reactivity** - The reactivity hazards deal with the potential of a material or chemical to release energy. Some materials are capable of rapid release of energy without any catalyst, while others can undergo violent eruptive or explosive reactions if they come in contact with water or other materials. Generally this rating is used to indicate the potential to reactive if the material is heated, jarred, or shocked. A low rating of **1** indicates a **material that is normally stable but may be reactive if heated**. The more hazardous ratings of **2, 3, and 4** indicate a **material is capable of violent reaction, shock/rapid heating and detonation respectively**.

**Other Hazard Information** - An open space at the bottom of the NFPA diagram can be used to indicate additional information about the chemical or material. This information may include the chemical or material's radioactivity, proper fire extinguishing agent, skin hazard, its use in pressurized containers, protective equipment required, or unusual reactivity with water. For example, the usual signal to indicate unusual reactivity with water is the letter "W" with a long line through the center. The words **ACID**, **COR** (corrosive), **RAD** (radiation), **OXY** (oxidizer), **Rad** (radioactive), **CARC** (carcinogen) or other abbreviations may also be used.

The following shows a summary of the NFPA rating system used for labeling secondary containers of chemicals.



## NFPA ratings for common chemicals

## APPENDIX B – SAMPLE MSDS



### MATERIAL SAFETY DATA SHEET

#### SECTION 1. PRODUCT IDENTIFICATION

**PRODUCT NAME:** Nitrogen, refrigerated liquid  
**CHEMICAL NAME:** Nitrogen **FORMULA:** N<sub>2</sub>  
**SYNONYMS:** Liquid Nitrogen, LIN, Cryogenic Liquid Nitrogen, Nitrogen  
**MANUFACTURER:** Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, PA 18195-1501  
**PRODUCT INFORMATION:** 1-800-752-1597  
**MSDS NUMBER:** 1041 **REVISION:** 5  
**REVISION DATE:** July 1995\*\*

#### SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Nitrogen is sold as pure product > 99%.  
**CAS NUMBER:** 7727-37-9  
**EXPOSURE LIMITS:** OSHA: Not established  
**ACGIH:** Simple asphyxiant

#### SECTION 3. HAZARD IDENTIFICATION

##### EMERGENCY OVERVIEW

Liquid nitrogen is a colorless, odorless, extremely cold liquid and gas under pressure. It can cause rapid suffocation when concentrations are sufficient to reduce oxygen levels below 19.5%. Self Contained Breathing Apparatus (SCBA) may be required. Contact with liquid or cold vapors can cause severe frostbite. Cold vapors in the air will appear as a white fog due to condensation of moisture. While this may indicate the presence of the gas it should not be used to determine its concentration in the atmosphere. Oxygen concentrations must be monitored in the release area. All cryogenic liquids produce large volumes of gas when they vaporize. One volume of liquid nitrogen will expand to produce 696.5 equivalent volumes of gas.

##### EMERGENCY TELEPHONE NUMBERS

800-523-9374 Continental U.S., Canada and Puerto Rico  
610-481-7711 other locations

##### POTENTIAL HEALTH EFFECTS INFORMATION:

**INHALATION:** Simple asphyxiant.  
**EYE CONTACT:** Tissue freezing and severe cryogenic burns if contacted into eyes.  
**SKIN CONTACT:** Tissue freezing and severe cryogenic burn of skin.  
**CHRONIC EFFECTS:** None established.

**EXPOSURE INFORMATION:****ROUTE OF ENTRY:** Inhalation**TARGET ORGANS:** None**EFFECT:** Asphyxiation (suffocation)

**SYMPTOMS:** Exposure to an oxygen deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will quickly bring about unconsciousness without warning, leaving individuals unable to help or protect themselves. Lack of sufficient oxygen can cause serious injury or death. Skin contact with liquid nitrogen can cause tissue freezing, resulting in severe burns. The burns are caused by the extremely low temperature of the cryogenic liquid and not the result of chemical action. Skin may appear red with the formation of blisters. In cases that involve prolonged or severe exposure, tissue may freeze and have a waxy or yellow appearance.

**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** None

**CARCINOGENIC POTENTIAL:** Nitrogen is not listed by NTP, OSHA or IARC as a carcinogen or suspected carcinogen.

<b>SECTION 4. FIRST AID</b>
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**INHALATION:** Persons suffering from lack of oxygen should be moved to fresh air. If victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Obtain prompt medical attention.

**SKIN CONTACT:** Remove any clothing that may restrict circulation to frozen area. Do not rub frozen parts as tissue damage may result. As soon as practical place the affected area in a warm water bath which has a temperature not to exceed 105°F (40°C). Never use dry heat. Call a physician as soon as possible.

Frozen tissue is painless and appears waxy with a possible yellow color. It will become swollen, painful, and prone to infection when thawed. If the frozen part of the body has been thawed, cover the area with dry sterile dressing with a large bulky protective covering, pending medical care. In case of massive exposure, remove clothing while showering with warm water. Call a physician.

**EYE CONTACT:** For exposure to liquid, immediately warm frostbite area with warm water (not to exceed 105°F).

<b>SECTION 5. FIRE AND EXPLOSION</b>
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**FLASH POINT:**  
Not Applicable

**AUTOIGNITION:**  
Nonflammable

**FLAMMABLE LIMIT:**  
Nonflammable

**EXTINGUISHING MEDIA:** Nitrogen is nonflammable and does not support combustion. Use extinguishing media appropriate for the surrounding fire.

**HAZARDOUS COMBUSTION PRODUCTS:** None

**SPECIAL FIRE FIGHTING INSTRUCTIONS:** Nitrogen is a simple asphyxiant. If possible, remove nitrogen containers from fire area or cool with water. Do not direct water spray at the container vent. Self contained breathing apparatus may be required for rescue workers. Evacuate the area.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Liquid nitrogen when spilled will vaporize rapidly forming an oxygen deficient vapor cloud. Evacuate this area. Pressure in a container can build up due to heat and it may rupture if pressure relief devices should fail to function. Contact with cold liquid or gaseous nitrogen may cause frostbite. Visibility may be obscured in its vapor cloud.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Increase ventilation to release area and monitor oxygen level. Use appropriate protective equipment (SCBA). To increase rate of vaporization spray large amounts of water on to the spill from an upwind position. If leak is from container or it's valve, call the Air Products emergency telephone number. Do NOT spray water directly at leak. If leak is in user's system close cylinder valve and vent pressure before attempting repairs.

## SECTION 7. HANDLING AND STORAGE

**STORAGE:** Store and use with adequate ventilation. Do not store in a confined space. Cryogenic containers are equipped with pressure relief devices to control internal pressure. Under normal conditions these containers will periodically vent product. Do not plug, remove, or tamper with pressure relief device.

**HANDLING:** Never allow any unprotected part of the body to touch uninsulated pipes or vessels which contain cryogenic fluids. The extremely cold metal will cause the flesh to stick fast and tear when one attempts to withdraw from it.

Use a suitable hand truck for container movement. Containers shall be handled and stored in an upright position. Do not drop, tip, or roll containers on their sides. Do not remove or interchange connections. If user experiences any difficulty operating container valve or with container connections discontinue use and contact supplier. Use the proper connection. DO NOT USE ADAPTERS.

Use piping and equipment adequately designed to withstand pressures to be encountered. Use a check valve or other protective apparatus in any line or piping from the cylinder to prevent reverse flow. To prevent cryogenic liquids or cold gas from being trapped in piping between valves the piping shall be equipped with pressure relief devices. Only transfer lines designed for cryogenic liquids shall be used. Some metals such as carbon steel may become brittle at low temperatures, will easily fracture and should not be used with cryogenic liquids. It is recommended that all vents be piped to the exterior of the building.

**SPECIAL PRECAUTIONS:** Some metals, such as carbon steel, may become brittle and fracture at low temperatures.

For additional information concerning storage and handling refer to Compressed Gas Association pamphlet P-12 *Safe Handling of Cryogenic Liquids* available from the Compressed Gas Association, Inc., 1725 Jefferson Davis Highway, Arlington, VA 22202-4102 Telephone (703) 412-0900.

## SECTION 8. PERSONAL PROTECTION / EXPOSURE CONTROL

**ENGINEERING CONTROLS:** Natural or mechanical ventilation to prevent oxygen deficient atmospheres under 19.5% oxygen.

**RESPIRATORY PROTECTION:**

**General Use:** None required.

**Emergency Use:** Self contained breathing apparatus (SCBA) or positive pressure airline with mask and escape pack are to be used in oxygen deficient atmosphere. Respirators will not function.

**PROTECTIVE GLOVES:** Loose fitting thermal insulated or leather gloves.

**EYE PROTECTION:** Full face shield and safety glasses are recommended.

**OTHER PROTECTIVE EQUIPMENT:** Safety shoes when handling containers. Long sleeve shirts and trousers without cuffs.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Colorless, cryogenic liquid

**ODOR:** Odorless

**MOLECULAR WEIGHT:** 28.01

**BOILING POINT (1 atm):** -320.4 °F (-195.8 °C)  
**SPECIFIC GRAVITY (Air = 1):** 0.967  
**FREEZING POINT/MELTING POINT:** -345.8 °F (-209.9 °C)  
**VAPOR PRESSURE (AT 20 °C):** Not applicable  
**GAS DENSITY (At 70 °F (21.1 °C) and 1 Atm):** 0.072 lb/ft<sup>3</sup> (1.153 kg/m<sup>3</sup>)  
**SOLUBILITY IN WATER (Vol/Vol at 32 °F (0 °C)):** 0.023  
**EXPANSION RATIO:** (For liquid to gas) at 70 °F (21.1 °C): 1 to 696.5

#### SECTION 10. REACTIVITY / STABILITY

**CHEMICAL STABILITY:** Stable  
**CONDITIONS TO AVOID:** None  
**INCOMPATIBILITY:** None  
**HAZARDOUS DECOMPOSITION PRODUCTS:** None  
**HAZARDOUS POLYMERIZATION:** Will not occur.

#### SECTION 11. TOXICOLOGICAL INFORMATION

Nitrogen is a simple asphyxiant.

#### SECTION 12. ECOLOGICAL INFORMATION

The atmosphere contains approximately 78% nitrogen. No adverse ecological effects are expected. Nitrogen does not contain any Class I or Class II ozone depleting chemicals. Nitrogen is not listed as a marine pollutant by DOT 49 CFR.

#### SECTION 13. DISPOSAL

**UNUSED PRODUCT/EMPTY CONTAINER:** Return container and unused product to supplier. Do not attempt to dispose of unused product.  
**DISPOSAL:** For emergency disposal, discharge slowly to the atmosphere in a well ventilated area or outdoors.

#### SECTION 14. TRANSPORTATION

**DOT HAZARD CLASS:** 2.2  
**DOT SHIPPING LABEL:** Nonflammable Gas  
**DOT SHIPPING NAME:** Nitrogen, Refrigerated Liquid  
**IDENTIFICATION NUMBER:** UN1977  
**REPORTABLE QUANTITY (RQ):** None  
**SPECIAL SHIPPING INFORMATION:** Containers should be transported in a secure upright position in a well ventilated truck. Never transport in passenger compartment of a vehicle.

#### SECTION 15. REGULATORY INFORMATION

##### U.S. FEDERAL REGULATIONS:

**CERCLA:** Comprehensive Environmental Response, Compensation, and Liability Act of 1980 requires notification to the National Response Center of a release of quantities of hazardous substances equal to or greater than the reportable quantities (RQ) in 40 CFR 302.4.

CERCLA REPORTABLE QUANTITY: None

**SARA TITLE III: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986**

**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).

Nitrogen is not listed as an Extremely Hazardous Substance.

**SECTIONS 311/312:** Require submission of material safety data sheets (MSDSs) and chemical inventory reporting with identification of EPA defined hazard classes. The hazard classes for this product are:

IMMEDIATE HEALTH:	Yes	PRESSURE:	Yes
DELAYED HEALTH:	No	REACTIVITY:	No
		FIRE:	No

**SECTION 313:** Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372. This information should be included in all MSDSs that are copied and distributed for this material.

Nitrogen is not listed as a toxic chemical.

**TOXIC SUBSTANCE CONTROL ACT (TSCA):** Nitrogen is listed on the TSCA inventory.

**ENVIRONMENTAL PROTECTION AGENCY (EPA)**

**40 CFR PART 68:** Risk Management for Chemical Accident Release Prevention.  
Nitrogen is not listed as a regulated substance.

**OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)**

**29 CFR 1910.119:** Process Safety Management of Highly Hazardous Chemicals. Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Nitrogen is not listed as a Highly Hazardous Chemical.

**STATE REGULATIONS:**

**CALIFORNIA:**

Proposition 65: This product does NOT contain any listed substances which the State of California requires warning under this statute.

SCAQMD Rule: VOC = Not applicable

<b>SECTION 16. SUPPLEMENTAL INFORMATION</b>
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**NFPA RATINGS:**

HEALTH:	3
FLAMMABILITY:	0
REACTIVITY:	0
SPECIAL:	SA*

\*Compressed Gas Association recommendation to designate simple asphyxiant.

**HMIS RATINGS:**

HEALTH:	3
FLAMMABILITY:	0
REACTIVITY:	0

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\*\* Documents with effective dates of July 1995 and July 1998 are identical in content and either may be used.

## APPENDIX C – HAZCOM PROGRAM DEFINITIONS

"**Chemical**" means any element, chemical compound or mixture of elements and/or compounds.

"**Chemical name**" means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

"**Combustible liquid**" means any liquid having a flashpoint at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flashpoints of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

"**Common name**" means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

"**Compressed gas**" means:

- a) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F (21.1 deg. C); or
- b) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg. F (54.4 deg. C) regardless of the pressure at 70 deg. F (21.1 deg. C); or
- c) A liquid having a vapor pressure exceeding 40 psi at 100 deg. F (37.8 deg. C) as determined by ASTM D-323-72.

"**Container**" means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

"**Distributor**" means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to employers.

"**Employee**" means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies.

"**Employer**" means a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

**"Explosive"** means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

**"Exposure or exposed"** means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

**"Flammable"** means a chemical that falls into one of the following categories:

- a) "Aerosol, flammable" means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;
- b) "Gas, flammable" means: (A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or (B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;
- c) "Liquid, flammable" means any liquid having a flashpoint below 100 deg. F (37.8 deg. C), except any mixture having components with flashpoints of 100 deg. F (37.8 deg. C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.
- d) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

**"Flashpoint"** means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

- a) (i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester, Z11.24-1979 (ASTM D 56-79)) for liquids with a viscosity of less than 45 Saybolt Universal Seconds (SUS) at 100 deg. F (37.8 deg. C), that do not contain suspended solids and do not have a tendency to form a surface film under test; or
- b) (ii) Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7-1979 (ASTM D 93-79)) for liquids with a viscosity equal to or greater than 45 SUS at 100 deg. F (37.8 deg. C), or that contain suspended solids, or that have a tendency to form a surface film under test; or

- c) (iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278-78)).

Organic peroxides, which undergo auto-accelerating thermal decomposition, are excluded from any of the flashpoint determination methods specified above.

**"Hazardous chemical"** means any chemical which is a physical hazard or a health hazard.

**"Hazard warning"** means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s).

**"Health hazard"** means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

**"Identity"** means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

**"Immediate use"** means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

**"Label"** means any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

**"Material Safety Data Sheet (MSDS)"** means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of the Occupational Health and Safety Act regulation 29 CFR 1910. 1200.

**"Mixture"** means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

**"Organic peroxide"** means an organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

**"Oxidizer"** means a chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

**"Physical hazard"** means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

**"Pyrophoric"** means a chemical that will ignite spontaneously in air at a temperature of 130 deg. F (54.4 deg. C) or below.

**"Responsible party"** means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

**"Specific chemical identity"** means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

**"Trade secret"** means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

**"Unstable (reactive)"** means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

**"Use"** means to package, handle, react, emit, extract, generate as a byproduct, or transfer.

**"Water-reactive"** means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

**"Work area"** means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

**"Workplace"** means an establishment, job site, or project, at one geographical location containing one or more work areas.

## APPENDIX D – HEALTH HAZARD DEFINITIONS

“**Health hazard**” means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

The term "health hazard" includes (but is not limited to) chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

Health hazards may cause measurable changes in the body - such as decreased pulmonary function. These changes are generally indicated by the occurrence of signs and symptoms in the exposed employees - such as shortness of breath, a non-measurable, subjective feeling.

**Acute** effects usually occur rapidly as a result of short-term exposures, and are of short duration. The acute effects are typically irritation, corrosivity, sensitization and lethal dose.

**Chronic** effects generally occur as a result of long-term exposure, and are of long duration. Chronic effect is often used to cover only carcinogenicity, teratogenicity, and mutagenicity.

**Carcinogen:** A chemical is considered to be a carcinogen if:

- a) It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or
- b) It is listed as a carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or,
- c) It is regulated by OSHA as a carcinogen.

**Corrosive:** A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours.

**Highly toxic:** A chemical falling within any of the following categories:

- a) A chemical that has a median lethal dose (LD (50)) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- b) A chemical that has a median lethal dose (LD (50)) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours

(or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

- c) A chemical that has a median lethal concentration (LC (50)) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

**Irritant:** A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.

**Sensitizer:** A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

**Toxic:** A chemical falling within any of the following categories:

- a) A chemical that has a median lethal dose (LD (50)) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
- b) A chemical that has a median lethal dose (LD (50)) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.
- c) A chemical that has a median lethal concentration (LC (50)) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

**Target organ effects:** The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects.

- a) Hepatotoxins: Chemicals which produce liver damage. Signs & Symptoms: Jaundice; liver enlargement. Chemicals: Carbon tetrachloride; nitrosamines.
- b) Nephrotoxins: Chemicals which produce kidney damage Signs & Symptoms: Edema; proteinuria. Chemicals: Halogenated hydrocarbons; uranium.
- c) Neurotoxins: Chemicals which produce their primary toxic effects on the nervous system. Signs & Symptoms: Narcosis; behavioral changes; decrease in motor functions. Chemicals: Mercury; carbon disulfide.
- d) Agents which act on the blood or hemato-poietic system: Decrease hemoglobin function; deprive the body tissues of oxygen. Signs & Symptoms: Cyanosis; loss of consciousness. Chemicals: Carbon monoxide; cyanides.

- e) Agents which damage the lung: Chemicals which irritate or damage pulmonary tissue. Signs & Symptoms: Cough; tightness in chest; shortness of breath. Chemicals: Silica; asbestos.
- f) Reproductive toxins: Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis). Signs & Symptoms: Birth defects; sterility. Chemicals: Lead; DBCP.
- g) Cutaneous hazards: Chemicals which affect the dermal layer of the body Signs & Symptoms: De-fatting of the skin; rashes; irritation. Chemicals: Ketones; chlorinated compounds.
- h) Eye hazards: Chemicals which affect the eye or visual capacity. Signs& Symptoms: Conjunctivitis; corneal damage. Chemicals: Organic solvents; acids.