

Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name: Neon, compressed (MSDS No. P-4629-D)	Trade Names: Neon
Chemical Name: Neon	Synonyms: Refrigerant gas R720
Chemical Family: Rare gas	Product Grades: 4.83 UHP, 5.0 Research
Telephone:	Company Name: Praxair, Inc.
Emergencies: 1-800-645-4633*	39 Old Ridgebury Road
CHEMTREC: 1-800-424-9300*	Danbury, CT 06810-5113
Routine: 1-800-PRAXAIR	

*Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier, Praxair sales representative, or call 1-800-PRAXAIR (1-800-772-9247).

2. Hazards Identification

EMERGENCY OVERVIEW

**CAUTION! High-pressure gas.
Can cause rapid suffocation.
May cause dizziness and drowsiness.
Self-contained breathing apparatus may be required by rescue workers.
Under ambient conditions, this is a colorless, odorless, inert gas.**

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communications Standard (29 CFR 1910.1200).

POTENTIAL HEALTH EFFECTS:

Effects of a Single (Acute) Overexposure

Inhalation. Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Lack of oxygen can kill.

Skin Contact. No harm expected.

Swallowing. An unlikely route of exposure. This product is a gas at normal temperature and pressure.

Eye Contact. No harm expected.

Effects of Repeated (Chronic) Overexposure. No harm expected.

Other Effects of Overexposure. Asphyxiant. Lack of oxygen can kill.

Medical Conditions Aggravated by Overexposure. The toxicology and the physical and chemical properties of neon suggest that overexposure is unlikely to aggravate existing medical conditions.

CARCINOGENICITY: Neon is not listed by NTP, OSHA, or IARC.

POTENTIAL ENVIRONMENTAL EFFECTS: None known. For further information, see section 12, Ecological Information.

3. Composition/Information on Ingredients

See section 16 for important information about mixtures.

COMPONENT	CAS NUMBER	CONCENTRATION
Neon	7440-01-9	>99%*

*The symbol > means "greater than."

4. First Aid Measures

INHALATION: Immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

SKIN CONTACT: An unlikely route of exposure. This product is a gas at normal temperature and pressure.

SWALLOWING: An unlikely route of exposure. This product is a gas at normal temperature and pressure.

EYE CONTACT: An unlikely route of exposure. This product is a gas at normal temperature and pressure.

NOTES TO PHYSICIAN: *There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.*

5. Fire Fighting Measures

FLAMMABLE PROPERTIES: Neon cannot catch fire.

SUITABLE EXTINGUISHING MEDIA: Neon cannot catch fire. Use media appropriate for surrounding fire.

PRODUCTS OF COMBUSTION: None known.

PROTECTION OF FIREFIGHTERS: CAUTION! High-pressure gas. Asphyxiant. Lack of oxygen could kill. Evacuate all personnel from danger area. Immediately spray cylinders with water from maximum distance until cool; then move them away from the fire area if without risk. Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

Specific Physical and Chemical Hazards. Heat of fire can build pressure in a closed container and cause it to rupture. No part of a container should be subjected to a temperature higher than 125°F (52°C). Neon cylinders are equipped with pressure relief devices. (Exceptions may exist where authorized by DOT.)

Protective Equipment and Precautions for Firefighters. Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

CAUTION! High-pressure gas.

Personal Precautions. Asphyxiant. Lack of oxygen could kill. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off leak if without risk. Ventilate area of leak or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

Environmental Precautions. Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local supplier for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING: *Protect cylinders from damage.* Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier. Close valve after each use; keep closed even when empty. For other precautions in using neon, see section 16.

PRECAUTIONS TO BE TAKEN IN STORAGE: *Store and use with adequate ventilation. Always secure cylinders upright to keep them from falling or being knocked over.* Install valve protection cap, if provided, firmly in place by hand when the cylinder is not in use. Store only where temperature will not exceed 125°F (52°C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

RECOMMENDED PUBLICATIONS: For further information on storage, handling, and use, see Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

COMPONENT	OSHA PEL	ACGIH TLV-TWA (2007)
Neon	N.E.*	Simple asphyxiant

*N.E.—Not Established.

IDLH = Not available.

ENGINEERING CONTROLS:

Local Exhaust. Use a local exhaust system, if necessary, to prevent oxygen deficiency.

Mechanical (General). General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.

Special. None

Other. None

PERSONAL PROTECTIVE EQUIPMENT:

Skin Protection. Wear work gloves when handling cylinders and metatarsal shoes for cylinder handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. Regardless of protective equipment, never touch live electrical parts.

Eye/Face Protection. Wear safety glasses when handling cylinders. Select in accordance with OSHA 29 CFR 1910.133.

Respiratory Protection. None required under normal use. However, air-supplied respirators are required while working in confined spaces with this product. Respiratory protection must conform to OSHA rules as specified in 29 CFR 1910.134.

9. Physical and Chemical Properties
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APPEARANCE:	Colorless gas
ODOR:	Odorless
ODOR THRESHOLD:	Not applicable.
PHYSICAL STATE:	Gas at normal temperature and pressure
pH:	Not applicable.
FREEZING POINT at 1 atm:	-415.6°F (-248.66°C)
BOILING POINT at 1 atm:	-410.91 °F (-246.06°C)
FLASH POINT (test method):	Not applicable.
EVAPORATION RATE (Butyl Acetate = 1):	Not applicable.
FLAMMABILITY:	Nonflammable
FLAMMABLE LIMITS IN AIR , % by volume:	LOWER: Not applicable. UPPER: Not applicable.
LIQUID DENSITY at -400°F (-240°C):	67.8 lb/ft ³ (1.086 g/cm ³)
VAPOR PRESSURE at 68°F (20°C):	Not applicable.
VAPOR DENSITY at 70°F (21.1°C) and 1 atm:	0.0522 lb/ft ³ (0.836 kg/m ³)
SPECIFIC GRAVITY (H ₂ O = 1) at boiling point :	1.204
SPECIFIC GRAVITY (Air = 1) at 70°F (21.1°C) and 1 atm:	0.697
SOLUBILITY IN WATER , vol/vol at 68°F (20°C):	0.0105
PARTITION COEFFICIENT: n-octanol/water:	Not available.
AUTOIGNITION TEMPERATURE:	Not applicable.
DECOMPOSITION TEMPERATURE:	Not available.
PERCENT VOLATILES BY VOLUME:	100
MOLECULAR WEIGHT:	20.18
MOLECULAR FORMULA:	Ne

10. Stability and Reactivity

CHEMICAL STABILITY: Unstable Stable

CONDITIONS TO AVOID: None known.

INCOMPATIBLE MATERIALS: None known. Neon is chemically inert.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

POSSIBILITY OF HAZARDOUS REACTIONS: May Occur Will Not Occur

11. Toxicological Information

ACUTE DOSE EFFECTS: Neon is a simple asphyxiant.

STUDY RESULTS: None known.

12. Ecological Information

ECOTOXICITY: No adverse ecological effects expected.

OTHER ADVERSE EFFECTS: Neon does not contain any Class I or Class II ozone-depleting chemicals.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

DOT/IMO SHIPPING NAME: Neon, compressed

HAZARD CLASS:	PACKING GROUP/Zone:	IDENTIFICATION NUMBER:	PRODUCT RQ:
2.2	NA*	UN1065	None

SHIPPING LABEL(s): NONFLAMMABLE GAS

PLACARD (when required): NONFLAMMABLE GAS

*Not applicable.

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

MARINE POLLUTANTS: Neon is not listed as a marine pollutant by DOT.

15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, state, and local regulations.

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: SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:

SECTIONS 302/304: Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of Extremely Hazardous Substances (EHS) (40 CFR Part 355):

TPQ: None

EHS RQ (40 CFR 355): None

SECTIONS 311/312: Require submission of MSDSs and reporting of chemical inventories with identification of EPA hazard categories. The hazard categories for this product are as follows:

IMMEDIATE: No

PRESSURE: Yes

DELAYED: No

REACTIVITY: No

FIRE: No

SECTION 313: Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Neon is not subject to reporting under Section 313.

40 CFR 68: RISK MANAGEMENT PROGRAM FOR CHEMICAL ACCIDENTAL RELEASE PREVENTION: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Neon is not listed as a regulated substance.

TSCA: TOXIC SUBSTANCES CONTROL ACT: Neon is listed on the TSCA inventory.

OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:

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.

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

STATE REGULATIONS:

CALIFORNIA: Neon is not listed by California under the SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (Proposition 65).

PENNSYLVANIA: Neon is subject to the PENNSYLVANIA WORKER AND COMMUNITY RIGHT-TO-KNOW ACT (35 P.S. Sections 7301-7320).

16. Other Information

Be sure to read and understand all labels and instructions supplied with all containers of this product.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE: *High-pressure gas. Use piping and equipment adequately designed to withstand pressures to be encountered.* Use a backflow prevention device in any piping. *Gas can cause rapid suffocation due to oxygen deficiency.* Store and use with adequate ventilation. *Never work on a pressurized system.* If there is a leak, close the cylinder valve. Blow the system down in a safe and environmentally sound manner in compliance with all federal, state, and local laws; then repair the leak. *Never place a compressed gas cylinder where it may become part of an electrical circuit.*

Mixtures. When you mix two or more gases or liquefied gases, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before

you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Remember, gases and liquids have properties that can cause serious injury or death.

HAZARD RATING SYSTEMS:

NFPA RATINGS:

HEALTH = 0
 FLAMMABILITY = 0
 INSTABILITY = 0
 SPECIAL = SA (CGA recommends this to designate Simple Asphyxiant.)

HMIS RATINGS:

HEALTH = 0
 FLAMMABILITY = 0
 PHYSICAL HAZARD = 3

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED:

0-3000 psig	CGA-580
3001-5500 psig	CGA-680
5001-7500 psig	CGA-677

PIN-INDEXED YOKE:

0-3000 psig	Not applicable.
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ULTRA-HIGH-INTEGRITY CONNECTION:

0-3000 psig	CGA-718
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Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlet V-1 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information can be found in the following materials published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, <http://www.cganet.com/Publication.asp>.

AV-1	<i>Safe Handling and Storage of Compressed Gases</i>
P-1	<i>Safe Handling of Compressed Gases in Containers</i>
SB-2	<i>Oxygen-Deficient Atmospheres</i>
V-1	<i>Compressed Gas Cylinder Valve Inlet and Outlet Connections</i>
—	<i>Handbook of Compressed Gases, Fourth Edition</i>

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Praxair, Inc., it is the user's obligation to determine the conditions of safe use of the product.

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