MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Union REACH Regulations

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	**NON-FLAMMABLE GAS MIXTURE EPA PROTOCOL MIXTURE Containing Nitric Oxide (< 2.3%) and Nitrogen (Balance)**
SYNONYMS:	Not Applicable
CHEMICAL FAMILY NAME:	Not Applicable
FORMULA:	Not Applicable
RODUCT USE:	EPA Protocol Analysis
DOCUMENT NUMBER:	MSDS 1035 (99-0195)
U.N. NUMBER:	UN 1956
U.N. DANGEROUS GOODS CLASS:	Class 2.2 (Non-Flammable Gas)
SUPPLIER/MANUFACTURER'S NAME:	**PortaGAS, Inc.**
ADDRESS:	1202 E. Sam Houston Pkwy S., Pasadena, TX 77503
EMERGENCY PHONE:	**TOLL-FREE in USA/Canada:** (800)255-3924 **International calls:** +1 813 248 0585 **Australian Poison Control:** 13 11 26 **Australian Fire Brigade:** 000
BUSINESS PHONE:	(713) 928-6477 General MSDS Info
DATE OF PREPARATION:	October 2012
DATE OF LAST REVISION:	October 2012

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This is a colorless, non-flammable gas mixture with an irritating odor. In the presence of air, Nitric Oxide (a component of this gas mixture) forms brown fumes of nitrogen dioxide that are corrosive. Due to the presence of Nitric Oxide, this gas mixture may be toxic by inhalation, if duration of exposure is prolonged. Symptoms of such overexposure may not become apparent for up to 72 hours (see below for more information). Emergency responders must protect themselves from inhalation. A water spray can be used to control and direct a release. Additionally, releases of this gas mixture may produce oxygen-deficient atmospheres; individuals in such atmospheres may be asphyxiated. A cylinder rupture hazard exists when this gas mixture, which is under pressure, is subject to heat or flames.

US DOT SYMBOLS

CANADA (WHMIS) SYMBOLS

EUROPEAN and (GHS) HAZARD SYMBOLS

Signal Word: **Danger**

EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No1272/2008

Annex 1 Index #: EC# 233-271-0, This substance is not listed in the Annex I of Regulation (EC) No 689/2008

Annex 1 Index #: EC# 231-783-9, This substance is not listed in the Annex I of Regulation (EC) No 689/2008

Pressurized Gas
Eye Irritant Category 2
Skin Irritant Category 2

Hazard Statement(s):

H280: Contains gas under pressure, may explode if heated
H315: Causes skin irritation
H319: Causes serious eye irritation
H331: Toxic if inhaled

Hazard Classification:

[T] Toxic; [Xn] Harmful;

Risk Phrases:

R23: Toxic by inhalation
R36/37/38: Irritating to eyes, respiratory system, and skin

Precautionary Statement(s):

P260: Do not breathe dust/fume/gas/mist/vapors/spray
P281: Use personal protective equipment as required.
P314: Get medical advice/attention if you feel unwell
P403: Store in a well ventilated place.

Safety Phrases:

S9: Keep in well ventilated area,
S45: In case of an accident or if you feel unwell, seek medical advice immediately,

HEALTH HAZARDS OR RISKS FROM EXPOSURE

ACUTE: This gas mixture is potentially toxic and damaging to the respiratory system, as well as to contaminated skin and eyes. Overexposures may result in severe irritation and burns of eyes, skin, mucous membranes, and any other exposed tissue. If inhaled, delayed pulmonary damage and breathing difficulty may occur. Immediate medical care is essential, as symptoms will rapidly worsen, possibly leading to death. Overexposure to this gas mixture may be fatal. Symptoms of an oxygen-deficient environment, an additional concern with this gas mixture, include headache, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of overexposure, death may occur.

CHRONIC: Prolonged or repeated overexposures to this gas mixture may cause bronchitis, hacking cough, nasal irritation and discharge, increased fatigue, and alteration in the senses of taste and smell. Repeated overexposures to this gas mixture can also result in dental erosion and gum disorders. Nitric oxide has been shown to cause genetic damage and fetal toxicity in animal or bacterial studies. See Section 11 (Toxicological Information) for additional information.

TARGET ORGANS: ACUTE: Respiratory system, skin, eyes. CHRONIC: Respiratory system, teeth

SECTION 3 - COMPOSITION and INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS:	CAS #	EINECS #	ICSC #	% Vol	HAZARD CLASSIFICATION; RISK PHRASES
Nitric Oxide	10102-43-9	233-271-0	1311	<2.3%	HAZARD CLASSIFICATION:[T] TOXIC, [Xn] HARMFUL RISK PHRASES: R23, R36/37/38, R50
Nitrogen	7727-37-9	231-783-9	1198	Balance	HAZARD CLASSIFICATION: NONE RISK PHRASES: NONE
None of the trace impurities in this product contribute significantly to the hazards associated with the product. **All hazard information pertinent to the product has been provided in this Material Safety Data sheet., per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards**					

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EU Directives and the Japanese Industrial Standard *JIS Z 7250: 2000*.

SECTION 4 - FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT:

NOTICE! Delayed onset of life-threatening symptoms is very likely to occur. **Victim(s) must be taken for immediate medical attention**. Rescuers should be taken for medical attention if necessary. Take copy of label and MSDS to physician or other health professional with victim(s). Medical care providers should refer to Recommendations to Physicians, below, for additional information. Remove victim(s) to fresh air as quickly as possible. If victim is not breathing or a dulling of senses occurs to the victim, administer artificial respiration. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary. Vomiting may occur as the person awakens. In order to prevent aspiration, exposed individuals should be placed on their side with their head at the level of, or slightly lower than, their body.

SKIN EXPOSURE: If this gas mixture contaminates the skin immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. Victim must seek immediate medical attention.

EYE EXPOSURE: If irritation of the eye develops after exposure to the gas, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: This gas mixture may aggravate acute or chronic respiratory conditions, skin conditions, or eye disorders.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms; reduce or eliminate exposure.

SECTION 5 - FIRE-FIGHTING MEASURES

FLASH POINT: Not Applicable.

AUTOIGNITION TEMPERATURE: Not Applicable

FLAMMABLE LIMITS (in air by volume, %): Lower (LEL): Not Applicable Upper (UEL): Not Applicable

FIRE EXTINGUISHING MATERIALS: Use extinguishing media appropriate for surrounding fire. In the event of fire cool containers of this gas mixture with water to prevent failure. Use a water spray or fog to reduce or direct vapors. Do not direct a water spray at the source of a release. Water spray should be used with care.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

This gas mixture does not burn; however, containers, when involved in fire, may rupture or burst in the heat of the fire. Nitric Oxide, a component of this gas mixture, is extremely toxic and can cause severe health effects at relatively low concentrations. Nitric Oxide can slowly react with water to form a corrosive solution of nitrogen dioxide; nitrogen dioxide is corrosive to skin and metal. Corrosive and toxic gases, vapors, and mists may spread from the point of release.

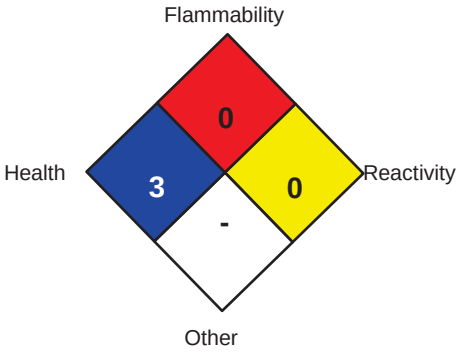
Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Not Sensitive

SPECIAL FIRE-FIGHTING PROCEDURES:

Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Fight fires in a protected location. Approach fire from an upwind direction to prevent overexposure to Nitric Oxide. If this product is involved in a fire, fire runoff water should be contained to prevent possible environmental damage. If cylinders are exposed to heat, the cylinder may rupture or burst and release the contents. It may be prudent to remove potentially heat-exposed cylinders from the area surrounding a fire if it is safe for firefighters to do so. Evacuation may be necessary. Refer to the North American Emergency Response Guidebook for additional information.

NFPA RATING SYSTEM



HMIS RATING SYSTEM

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM	
HEALTH HAZARD (BLUE)	3
FLAMMABILITY HAZARD (RED)	0
PHYSICAL HAZARD (YELLOW)	0

PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
	See Sect 8		See Sect 8

For Routine Industrial Use and Handling Applications

Hazard Scale: 0 = Minimal **1** = Slight **2** = Moderate **3** = Serious **4** = Severe * = Chronic hazard

SECTION 6 - ACCIDENTAL RELEASE MEASURES

LEAK RESPONSE:

Evacuate immediate area. Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. Minimum Personal Protective Equipment should be **Level B: Self-Contained Breathing Apparatus.** Locate and seal the source of the leaking gas. Allow the gas to dissipate. Monitor the surrounding area for the level of Nitric Oxide and Oxygen. Nitric Oxide levels must be below the exposure level listed in Section 2 (Composition and Information on Ingredients) and the atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. While starch-iodide paper will respond to the presence of Nitric Oxide, the limit of detection is too high to be of appreciable value, and its use is not recommended. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in place or remove it to a safe area away from sources of ignition and allow the gas to be released there. If gas is leaking incidentally from the cylinder or its valve, contact your supplier.

SECTION 7 - HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES:

All employees who handle this material should be trained to handle it safely. Avoid breathing the gas or sprays or mists generated by this gas mixture. Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms.

STORAGE AND HANDLING PRACTICES:

Cylinders should be stored upright (with valve protection cap in place) and firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Keep storage area clear of materials that can burn. Do not allow area where cylinders are stored to exceed 52°C (125°F). Store containers away from heavily trafficked areas and emergency exits. Store away from process and gas production areas, elevators, building and room exits, or main aisles leading to exits. Protect cylinders against physical damage.

Because Nitric Oxide is a component of this gas mixture, use only Nitric Oxide compatible materials for cylinders, process lines, and other gas-handling equipment. Anhydrous Nitric Oxide is not corrosive to steel and other common structural materials. In the presence of air or moisture, however, corrosive conditions will develop. If piping and accessories cannot be maintained free of air or moisture, stainless steel is recommended. Periodic inspections of process equipment by knowledgeable persons should be made to ensure that the equipment is used appropriately and that the system is kept in suitable operating condition. Keep the smallest amount on-site as is necessary. 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. Use a check valve in the discharge line to prevent hazardous backflow. Never tamper with pressure relief devices in valves and cylinders.

WARNING! Do not refill DOT 39 cylinders. To do so may cause personal injury or property damage.

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS:

Compressed gases can present significant safety hazards. During cylinder use, use equipment designed for these specific cylinders. Ensure all lines and equipment are rated for proper service pressure.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:

Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

Chemical Name	CAS#	ACGIH TWA	OSHA TWA	SWA
Nitric Oxide	10102-43-9	25 ppm	25 ppm	25 ppm
Nitrogen	7727-37-9	SA	SA	SA

Nitrogen is a simple asphyxiant (SA).

Currently, International exposure limits are not established for the components of this product. Please check with competent authority in each country for the most recent limits in place.

VENTILATION AND ENGINEERING CONTROLS:

Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents dispersion of this gas into the work place by eliminating it at its source. Eyewash stations/safety showers should be near areas where this product is used or stored. Employee exposure should be monitored and reduced to the lowest practical levels using ventilation or other appropriate engineering controls. If necessary, cylinders of this gas mixture should be placed in a ventilated gas cabinet, due to the presence of Nitric Oxide. If appropriate, install automatic monitoring equipment to detect the level of Nitric Oxide.

RESPIRATORY PROTECTION:

Maintain exposure level of Nitric Oxide below the level listed in Section 2 (Composition and Information on Ingredients) and oxygen level above 19.5% in the workplace. Use supplied air respiratory protection if Nitric Oxide level exceeds exposure limits and if oxygen level is below 19.5% or during emergency response to a release of this product. If respiratory protection is needed, such as during emergency response to situations in which liquid is released along with other potentially hazardous materials, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION:

Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION:

Wear gloves when handling cylinders of this gas mixture. Wear PVC, Teflon®, Kel-F®, or Neoprene Rubber gloves for industrial use. Use triple gloves for spill response (see Section 6, Accidental Release Measures). If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION:

Chemical resistant protective clothing is recommended when handling this material due to its toxicity and corrosivity. Safety shoes are recommended when handling cylinders. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Unless otherwise specified, the following information is for Nitrogen, the main component of this gas mixture.

GAS DENSITY@32°F (0°C) and 1 atm:	0.072 lbs/cu ft (1.153 kg/m^3)
BOILING POINT:	-195.8°C (-320.4°F)
FREEZING/MELTING POINT (@ 10 psig):	-210°C (-345.8°F)
SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C):	0.90
pH:	Not applicable.
SOLUBILITY IN WATER vol/vol at 32°F (0°C) and 1 atm:	0.023
MOLECULAR WEIGHT:	28.01

EVAPORATION RATE (nBuAc = 1):	Not applicable.
EXPANSION RATIO:	Not applicable.
ODOR THRESHOLD:	0.29-0.97 ppm (for Nitric Oxide)
SPECIFIC VOLUME (ft^3/lb):	13.8
VAPOR PRESSURE @ 70°F (21.1°C) (psig):	Not applicable.
COEFFICIENT WATER/OIL DISTRIBUTION:	Not applicable.

The following information is for this gas mixture.

APPEARANCE, ODOR AND COLOR:	Colorless gas mixture with an irritating odor (due to the presence of Nitric Oxide). In the presence of air, Nitric Oxide forms brown fumes of nitrogen dioxide.
HOW TO DETECT THIS SUBSTANCE (warning properties):	Though the odor is irritating, it does not serve as a reliable warning property for this gas mixture. Otherwise, there are no distinct warning properties of this gas mixture. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation. Area monitoring should be performed using appropriate equipment.

SECTION 10 - STABILITY and REACTIVITY

STABILITY:

Normally stable. This gas mixture may be unstable at higher pressures and temperatures, due to the presence of Nitric Oxide, and could cause the rupture of a container with an adequate energy input.

DECOMPOSITION PRODUCTS:

This gas mixture can slowly react with water or moist air to form a corrosive solution of nitrogen dioxide or other nitrogen oxides, due to the presence of Nitric Oxide. Nitrogen dioxide is corrosive to skin and metal.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:

This gas mixture (due to the presence of Nitric Oxide) is not compatible with the following materials: air, oxygen, flammable or combustible materials, powdered aluminum, boron, chlorine monoxide, chromium, fluorine, nitrogen trichloride, ozone, phosphorous, oxidizing agents, halogens, powdered iron, sodium monoxide, magnesium, manganese, uranium, and tungsten carbide.

HAZARDOUS POLYMERIZATION:

Will not occur.

CONDITIONS TO AVOID:

Contact with air, moisture, and incompatible materials. Cylinders exposed to high temperatures or direct flame can rupture or burst.

SECTION 11 - TOXICOLOGICAL INFORMATION

TOXICITY DATA:

The following toxicology data are available for the components of this product:

NITRIC OXIDE: Mutation in Microorganisms (Salmonella typhimurium) 30 ppm Mutation in Mammalian Somatic Cells (Rat-Inhalation) 27 ppm/ 3 hours-continuous Mutation in Mammalian Somatic Cells-Hamster: lung 10 ppm/ 10 minutes-continuous LC_{50} (Inhalation-Rat) 1068 mg/m^3 LCLo (Inhalation-Mouse) 320 ppm LCLo (Inhalation-Dog, adult) 5000 ppm/ 25 minutes TCLo (Inhalation-Rat) 50 mg/m^3/ 6 hours/ 7 weeks-intermittent

NITROGEN: There are no specific toxicology data for Nitrogen. Nitrogen is a simple asphyxiant (SA), which acts to displace oxygen in the environment

SUSPECTED CANCER AGENT:

The components of this gas mixture are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC and therefore are neither considered to be nor suspected to be cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT:

This gas mixture irritates the eyes and may irritate the skin. In addition, contact with rapidly expanding gases can cause frostbite to exposed tissue.

SENSITIZATION OF PRODUCT:

Nitrogen and Nitric Oxide (components of this gas mixture) are not known to cause skin or respiratory sensitization in humans. However, some animal studies indicate Nitric Oxide exposure could cause an allergic reaction to albumin.

REPRODUCTIVE TOXICITY INFORMATION:

Listed below is information concerning the effects of this gas mixture and its components on the human reproductive system. Mutagenicity: This gas mixture is not expected to cause mutagenic effects in humans. Animal mutagenic data are available for Nitric Oxide (a component of this gas mixture); these data were obtained during clinical studies on specific animal tissues exposed to relatively high doses of this gas. Embryotoxicity: This gas mixture is not expected to cause embryotoxic effects in humans. Teratogenicity: This gas mixture is not expected to cause teratogenic effects in humans. Reproductive Toxicity: This gas mixture is not expected to cause adverse reproductive effects in humans.

BIOLOGICAL EXPOSURE INDICES (BEIs):

Currently there are no ACGIH Biological Exposure Indices (BEIs) applicable for this gas mixture's components.

SECTION 12 - ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY:

This gas mixture will be dissipated rapidly in well-ventilated areas.

EFFECT OF MATERIAL ON PLANTS or ANIMALS:

Any adverse effect on animals would be related to oxygen-deficient environments, respiratory system damage, and damage to the skin and eyes. Because Nitric Oxide (a component of this gas mixture) produces corrosive nitrogen dioxide upon contact with air or moisture, plants may be damaged or destroyed by a release of this gas mixture.

EFFECT OF CHEMICAL ON AQUATIC LIFE:

Nitric Oxide (a component of this gas mixture) hydrolyzes to nitrogen dioxide when in contact with water. If a release of this gas mixture occurs near a river or other body of water, the release has the potential to kill fish and other aquatic life.

SECTION 13 - DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL:

Waste disposal must be in accordance with appropriate Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan. Cylinders with undesired residual product may be safely vented outdoors with the proper regulator. For further information, refer to Section 16 (Other Information).

SECTION 14 - TRANSPORTATION INFORMATION

US DOT, IATA, IMO, ADR:

THIS GAS IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (Nitrogen, Nitric Oxide)

HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)

UN IDENTIFICATION NUMBER: UN 1956

PACKING GROUP: Not applicable.

DOT LABEL(S) REQUIRED: Non-Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

MARINE POLLUTANT:

The components of this gas mixture are not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

SPECIAL SHIPPING INFORMATION:

Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

NOTE: DOT 39 Cylinders ship in a strong outer carton (over pack). Pertinent shipping information goes on the outside of the over pack. DOT 39 Cylinders do not have transportation information on the cylinder itself.

U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS:

This product is classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:

This product is classified as Dangerous Goods, per regulations of Transport Canada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):

This product is classified as Dangerous Goods, by rules of IATA:

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:

This product is classified as Dangerous Goods by the International Maritime Organization.

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):

This product is classified by the United Nations Economic Commission for Europe to be dangerous goods.

SECTION 15 - REGULATORY INFORMATION

UNITED STATES REGULATIONS

SARA REPORTING REQUIREMENTS:

The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows: Nitric Oxide SARA 302, SARA 304 & SARA 313

TSCA:

All components in this product are listed on the US Toxic Substances Control Act (TSCA) inventory of chemicals.

SARA 311/312:

Acute Health:	Yes	Chronic Health:	Yes	Fire:	No	Reactivity:	No

U.S. SARA THRESHOLD PLANNING QUANTITY: Nitric Oxide = 100 lb (45.4 kg)
U.S. CERCLA REPORTABLE QUANTITY (RQ): Nitric Oxide = 10 lb (4.5 kg)
OTHER U.S. FEDERAL REGULATIONS:

Nitric Oxide (a component of this gas mixture) is subject to the reporting requirements of CFR 29 1910.1000. This gas mixture does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82). Nitric Oxide is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds. Nitrogen is not listed as a Regulated Substance, per 40 CFR, Part 68, of the Risk Management for Chemical Releases. Nitric Oxide is listed under this regulation in Table 1 as a Regulated Substance (Toxic Substance) in quantities of 10,000 lbs (4,553 kg) or greater. Depending on specific operations involving the use of this product, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Nitric Oxide is listed in Appendix A. The threshold quantity for Nitric Oxide under this regulation is 250 lbs.

U.S. STATE REGULATORY INFORMATION: The components of this gas mixture are covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances:	Nitrogen, Nitric Oxide.
California - Permissible Exposure Limits for Chemical Contaminants:	Nitric Oxide.
Florida - Substance List:	Nitrogen, Nitric Oxide.
Illinois - Toxic Substance List:	Nitric Oxide.
Kansas - Section 302/313 List:	Nitric Oxide.
Massachusetts - Substance List:	Nitrogen, Nitric Oxide.
Michigan - Critical Materials Register:	No.
Minnesota - List of Hazardous Substances:	Nitric Oxide.
Missouri - Employer Information/Toxic Substance List:	Nitric Oxide.
New Jersey - Right to Know Hazardous Substance List:	Nitrogen, Nitric Oxide.
North Dakota - List of Hazardous Chemicals, Reportable Quantities:	Nitric Oxide.
Pennsylvania - Hazardous Substance List:	Nitrogen, Nitric Oxide.
Rhode Island - Hazardous Substance List:	Nitrogen, Nitric Oxide.
Texas - Hazardous Substance List:	Nitric Oxide.
West Virginia - Hazardous Substance List:	Nitric Oxide.
Wisconsin - Toxic and Hazardous Substances:	Nitric Oxide.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The components of this gas mixture are not on the California Proposition 65 lists.

CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: All of the components of this product are on the DSL Inventory

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: No component of this product is on the CEPA First Priorities Substance Lists.

CANADIAN WHMIS CLASSIFICATION and SYMBOLS: This gas mixture is categorized as a Controlled Product, Hazard Classes A, D1B, D2A and E, as per the Controlled Product Regulations.

EUROPEAN ECONOMIC COMMUNITY INFORMATION:

EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No1272/2008. See section 2 for details.

AUSTRALIAN INFORMATION FOR PRODUCT:

AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS: All components of this product are listed on the AICS.

STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS: Not applicable.

JAPANESE INFORMATION FOR PRODUCT:

JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS: The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

INTERNATIONAL CHEMICAL INVENTORIES:

Listing of the components on individual country Chemical Inventories is as follows:

Asia-Pac:	Listed
Australian Inventory of Chemical Substances (AICS):	Listed
Korean Existing Chemicals List (ECL):	Listed
Japanese Existing National Inventory of Chemical Substances (ENCS):	Listed
Philippines Inventory if Chemicals and Chemical Substances (PICCS):	Listed
Swiss Giftliste List of Toxic Substances:	Listed
U.S. TSCA:	Listed

MATERIAL SAFETY DATA SHEET

SECTION 16 - OTHER INFORMATION

INFORMATION ABOUT DOT-39 NRC (Non-Refillable Cylinder) PRODUCTS:

DOT 39 cylinders ship as hazardous materials when full. Once the cylinders are relieved of pressure (empty) they are not considered hazardous material or waste. Residual gas in this type of cylinder is not an issue because toxic gas mixtures are prohibited. Calibration gas mixtures typically packaged in these cylinders are Nonflammable n.o.s., UN 1956. A small percentage of calibration gases packaged in DOT 39 cylinders are flammable or oxidizing gas mixtures. For disposal of used DOT-39 cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other DOT containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content.

MIXTURES:

When two or more gases or liquefied gases are mixed, their hazardous properties may combine to 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 make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

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