Date of Issue:
27 February 2015

SAFETY DATA SHEET

1. Substance and Source Identification

Product Identifier

SRM Number: 1800b

SRM Name: Eighteen Non-Methane Hydrocarbon Compounds in Nitrogen (Nominal Amount-of-Substance Fraction 5 nmol/mol)

Other Means of Identification: Not Applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is a primary gas mixture of non-methane hydrocarbon (NMHC) in nitrogen supplied in a DOT 3AL-specification aluminum (6061 alloy) cylinder with a water volume of 6 L. Mixtures are shipped with a nominal pressure exceeding 12.4 MPa (1800 psig), which provides the user with 0.73 m^3 (25.8 ft^3) of useable mixture. The cylinder is the property of the purchaser and is equipped with a CGA-350 stainless steel valve, which is the recommended outlet for this NMHC mixture.

Company Information

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2300
Gaithersburg, Maryland 20899-2300

Telephone: 301-975-2200
FAX: 301-948-3730
E-mail: SRMMSDS@nist.gov
Website: http://www.nist.gov/srm

Emergency Telephone ChemTrec:
1-800-424-9300 (North America)
+1-703-527-3887 (International)

2. Hazards Identification

Classification

Physical Hazard: Compressed Gas

Health Hazard: Simple Asphyxiant

Label Elements

Symbol

Signal Word

WARNING

Hazard Statement(s)

H280	Contains gas under pressure; may explode if heated.
------	May displace oxygen and cause rapid suffocation.

Precautionary Statement(s)

P410+P403	Protect from sunlight. Store in a well-ventilated place.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. Composition and Information on Hazardous Ingredients

Substance: Nitrogen, compressed gas mixture

Other Designations:
Nitrogen: Dinitrogen; nitrogen compressed.

The concentration of non-methane hydrocarbon compounds (see Certificate of Analysis) in the identified NIST cylinder are below the reportable limits for hazardous components (1 %) and/or carcinogens (0.1 %), as required by OSHA, 29 CFR 1910.1200 (g)(2)(i)(C)(1), for MSDS information.

Hazardous Components	CAS Number	EC Number (EINECS)	Nominal Concentration (%)
Nitrogen	7727-37-9	231-783-9	>99

4. First Aid Measures

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Not applicable.

Eye Contact: Immediately flush eyes, including under the eyelids with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: Ingestion of a gas is unlikely.

Most Important Symptoms/Effects, Acute and Delayed: Potentially fatal if inhaled.

Indication of any immediate medical attention and special treatment needed, if necessary: If any of the above symptoms are present, seek immediate medical attention.

5. Fire Fighting Measures

Fire and Explosion Hazards: Negligible fire hazard applicable to the identified NIST cylinder. Cylinders may rupture or explode if exposed to heat. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media:
Suitable: Use extinguishing media appropriate to the surrounding fire.
Unsuitable: None listed.

Specific Hazards Arising from the Chemical: not applicable.

Special Protective Equipment and Precautions for Fire-Fighters: Move cylinder from fire area if it can be done without personal risk. Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1 Fire = 0 Reactivity = 0

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection". Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.

Methods and Materials for Containment and Clean up: Stop leak if possible without personal risk. Isolate hazard area and deny entry. Ventilate closed spaces before entering.

7. Handling and Storage

Safe Handling Precautions: Secure cylinder to prevent physical damage. Close valve after each use and when empty. Keep value protection cap on cylinder when not in use.

Storage: Store and handling in accordance with all current regulations and standards. Keep separated from incompatible substances. Store in well-ventilated area. Subject to storage regulations, OSHA 29 CFR 1910.101.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

Nitrogen

ACGIH (TLV): Simple asphyxiant.

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection Measures: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Wear splash resistant safety goggles with a face shield. An eye wash station should be readily available near areas of use.

Skin and Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

NOTE: The physical and chemical data provided are for nitrogen. The actual behavior of the gas mixture may differ from the individual component.

Descriptive Properties:	**Nitrogen (>99 %)**
Appearance (physical state, color, etc.)	colorless compressed gas
Molecular Formula	N2
Molar Mass (g/mol)	28
Odor	odorless
Odor threshold	not available
pH	not applicable
Evaporation rate	not applicable
Melting point/freezing point	–210 ºC (–346 ºF)
Relative Density (g/L)	1.2506
Vapor Pressure	760 mmHg at –196 ºC
Vapor Density (air = 1)	0.967
Viscosity (cP)	0.01787 at 27 ºC
Solubility(ies)	water (1.6 % at 20 ºC) and liquid ammonia
Partition coefficient (n-octanol/water)	not available
Thermal Stability Properties	
Autoignition Temperature	not applicable
Thermal Decomposition	not applicable
Initial boiling point and boiling range	–196 ºC (–321 ºF)
Explosive Limits, LEL (Volume %)	not applicable
Explosive Limits, UEL (Volume %)	not applicable
Flash Point	not applicable
Flammability (solid, gas)	not applicable

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperature and pressure.

Stability: X Stable _____ Unstable

Possible Hazardous Reactions: None listed.

Conditions to Avoid: Protect from physical damage; containers may rupture or explode if exposed to heat.

Incompatible Materials: Oxidizing materials and metals.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Miscellaneous decomposition products.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: X Inhalation _____ Skin _____ Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Nausea, headache, weakness, drowsiness.

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: Nitrogen: Nitrogen compressed gas is a simple asphyxiant. Release in an enclosed space may result in asphyxiation. The symptoms of asphyxia depend on the rapidity with which the oxygen deficiency develops and how long it continues. In sudden acute asphyxia, unconsciousness may be immediate. With slow development, there may be rapid respiration and pulse, air hunger, dizziness, reduced awareness, tightness in the head, tingling sensations, incoordination, faulty judgment, emotional instability, and rapid fatigue. As the asphyxia progresses, nausea, vomiting, collapse, unconsciousness, convulsions, deep coma, and death are possible.

Skin Contact: No adverse effects reported.

Eye Contact: No adverse effects reported.

Ingestion: Ingestion of a gas is unlikely under normal conditions of use.

Numerical Measures of Toxicity:

Acute Toxicity: Not classified.
Nitrogen: Simple asphyxiant.

Skin Corrosion/Irritation: Not applicable.

Serious Eye Damage/ Eye Irritation: Not applicable.

Respiratory Sensitization: No data available.

Skin Sensitization: No data available.

Germ Cell Mutagenicity: No data available.

Carcinogenicity: Not classified.

Listed as a Carcinogen/Potential Carcinogen _____ Yes X No
Nitrogen is not listed by NTP, IARC or OSHA as a carcinogen/potential carcinogen.

Reproductive Toxicity: No data available.

Specific Target Organ Toxicity, Single Exposure: Not classified.

Specific Target Organ Toxicity, Repeated Exposure: No data available.

Aspiration Hazard: Not classified.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data: No data available.

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: UN1956, compressed gas, n.o.s. (Eighteen Non-Methane Hydrocarbon Compounds in nitrogen), Hazard Class 2.2.

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Identified cylinder not regulated.

SARA Title III Section 302 (40 CFR 355.30): Identified cylinder not regulated.

SARA Title III Section 304 (40 CFR 355.40): Identified cylinder not regulated.

SARA Title III Section 313 (40 CFR 372.65): Identified cylinder not regulated.

OSHA Process Safety (29 CFR 1910.119): Identified cylinder not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH:	Yes
CHRONIC HEALTH:	No
FIRE:	No
REACTIVE:	No
PRESSURE:	Yes

State Regulations:

California Proposition 65: Not listed.

U.S. TSCA Inventory: Nitric oxide and nitrogen are listed.

TSCA 12(b), Export Notification: No components are listed.

Canadian Regulations: WHMIS Information is not provided for this material.

16. OTHER INFORMATION

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Sources: ChemADVISOR, Inc., MSDS, *Nitrogen, Compressed Gas*, 15 December 2014.

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration	STEL	Short Term Exposure Limit
LD50	Median Lethal Dose or Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLV	Threshold Limit Value
MSDS	Material Safety Data Sheet	TPQ	Threshold Planning Quantity
NFPA	National Fire Protection Association	TSCA	Toxic Substances Control Act
NIOSH	National Institute for Occupational Safety and Health	TWA	Time Weighted Average
NIST	National Institute of Standards and Technology	UEL	Upper Explosive Limit
n.o.s.	Not otherwise specified	WHMIS	Workplace Hazardous Materials Information System

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at http://www.nist.gov/srm.