Intermountain Specialty Gases

Hydrogen Cyanide (0.0001%-0.0025%) in Nitrogen

Issue date March 1, 2015

Reviewed date March 1, 2018

Safety Data Sheet

SDS ID# 4096

Section 1. IDENTIFICATION

1.1. Product identifier

Product form : Mixture

Product name : Hydrogen Cyanide (0.0001%-0.0025%) in Nitrogen

1.2. Relevant identified uses of the substance or mixture and uses advised against

Product use : Calibration gas/Bumptest gas/Function test gas

1.3. Details of the supplier of the safety data sheet

Intermountain Specialty Gases
520 N. Kings Road
Nampa, ID 83687
Telephone 1-208-466-9425 or Toll free 1-800-552-5003
Fax 1-208-466-9144
www.isgases.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

Section 2. HAZARDS INDENTIFICATION

2.1. Classification of the substance or mixture

Classification GASES UNDER PRESSURE - Compressed gas
Simple asphyxiant - Yes
Acute toxicity, 5 Inhalation

2.2. Label elements

Hazard pictograms

Signal word : WARNING

Hazard statements : H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
: OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.
: H333 - MAY BE HARMFUL IF INHALED
: OSHA - PG01 - DO NOT REMOVE THIS PRODUCT LABEL

Precautionary statements

[General] : Read and follow all Safety Data Sheets (SDS's) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have a product container or label at hand. Use equipment rated for cylinder pressure.

[Prevention] : P202 - Do not handle until all safety precautions have been read and understood
: P308+P313 - If exposed or concerned: Get medical advice/attention.
: P271+P403- Use only outdoors or in a well-ventilated area

[Response] : P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
: P313 - Get medical advice/attention.

[Storage] : CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

[Disposal] : Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity

No data available

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Product Identifier	%
Nitrogen	(CAS No) 7727-37-9	99.75 - 99.9999
Hydrogen Cyanide	(CAS No) 74-90-8	0.0001 - 0.0025

Section 4. FIRST AID MEASURES

4.1. Description of first aid measures

General : IF exposed or concerned: Get medical advice/attention.

Inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, give artificial respiration or oxygen by trained personnel. If victim feels unwell, seek medical advice.

Skin contact : Immediately flush with copious amount of water for at least 15 minutes.

Eye contact : Immediately flush with copious amount of water for at least 15 minutes.

Ingestion : Ingestion is not considered a potential route of exposure, refer to the inhalation section.

4.2. Most important symptoms/effects, acute and delayed

Acute

Inhalation PROMPT REMOVAL FROM THE CONTAMINATED AREA AND IMMEDIATE MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPED WITH SELF-CONTAINED BREATHING APPARATUS AND BE AWARE OF THE HEALTH HAZARDS ASSOCIATED WITH HYDROGEN CYANIDE.

: A complete Cyanide Antidote Kit should be available near all areas of use. Personnel should e trained in the use of the kit to administer first aid in advance of medical

	assistance. Pertinent medical records shall be maintained for 5 years following the last exposure to hydrogen cyanide.
	: May displace oxygen and cause rapid suffocation.
Skin contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Eye contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion	: Ingestion is not considered a potential route of exposure, refer to the inhalation section.
Frostbite	: Thaw frosted parts with lukewarm water. Do not rub affected areas. Get immediate medical advice/attention.
Symptoms/injuries upon intravenous administration	: Not known
Chronic symptoms	: Adverse effects not expected from this product.
Delayed	: Adverse effects not expected from this product.

4.3. Indication of any immediate medical attention and special treatment needed

If victim feels unwell, seek medical advice. If breathing is difficult, give artificial respiration or oxygen by trained personnel.

Section 5. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: None known

5.2. Special hazards arising from the substance or mixture

Fire hazard	: The product is not flammable
Explosion hazard	: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Reactivity	: None known.

5.3. Advice for fire-fighters

Firefighting instructions	: In case of fire: Evacuate all personnel from the danger area. Stop the leak and flow of gas before extinguishing fire, if safe to do so. If this is not possible, withdraw from area and allow fire to burn. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Let the fire burn. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Exercise caution when fighting any chemical fire.
Protection during firefighting	: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus, SCBA) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

Section 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Ensure adequate ventilation.
6.1.1. For non -emergency personnel	
Protective equipment	: Wear protective equipment consistent with the site emergency plan.
Emergency procedures	: Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.
6.1.12. For emergency responders	
Protective equipment	: Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.

Emergency procedures : Evacuate and limit access. Ventilate area. See information above "For non-emergency personnel".

6.2. Methods and material for containment and cleaning up

For containment : Immediately contact emergency personnel. Try to stop gas leak if safe to do so.

Methods for cleaning up :Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Precautions for safety handling : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Protect cylinders from physical damage; do not drag, roll, slide, or drop.

Hygiene measures : Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : None known.

Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Store locked up. Keep containers closed when not in use. Protect cylinder from physical damage. Store and use away from heat, sparks, open flame or any other ignition source. Store in well ventilated area.

Incompatible products : None known.

Incompatible materials : None known.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Nitrogen (7727-37-9)

OSHA PEL		Cal/OSHA PEL	NIOSH REL	ACGIH 2015 TLV
		(as of 4/26/13)	(as of 4/26/13)	
ppm	mg/m^3	8-hour TWA (ST) STEL (C) Ceiling	up to 10-hour TWA (ST) STEL (C) Ceiling	8-hour TWA (ST) STEL (C) Ceiling
Not established	*Not established*	*Not established*	*Not established*	Simple asphyxiant

Hydrogen cyanide (74-90-8)

OSHA PEL		Cal/OSHA PEL	NIOSH REL	ACGIH 2015 TLV
		(as of 4/26/13)	(as of 4/26/13)	
ppm	mg/m^3	8-hour TWA (ST) STEL (C) Ceiling	up to 10-hour TWA (ST) STEL (C) Ceiling IDLH	8-hour TWA (ST) STEL (C) Ceiling
4.7 ppm	11 mg/m^3	10 ppm		
			(ST) 4.7 ppm	(ST) 4.7 ppm

8.2. Appropriate engineering controls

Engineering measures/controls : Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly check for leakages. Ensure exposure is below occupational exposure limits. Oxygen detectors should be used when asphyxiating gases may me released. Consider work permit system e.g. for maintenance activities.

8.3. Individual protection measures

Hand protection	: Wear working gloves when handling gas containers. 29CFR 1910.138: Hand Protection.
Eye protection	: Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.
Skin and body protection	: Wear suitable protective clothing, e.g.-Lab coats, coveralls or flame resistant clothing.
Respiratory protection	: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.
Thermal hazard protection	: None necessary during normal and routine operations.
Environmental exposure controls	: Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
Other information	: Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Exposure controls

Appearance	: Clear, colorless gas.
Physical state	: Gas
Color	: Colorless
Odor	: Bitter-sweet almond (HCN)
Odor threshold	: 2 - 5 ppm (HCN)
pH	: No data available
Freezing point	: -209.9 °C
Flash point	: No data available
Evaporation rate	: No data available
Flammability (solid, gas)	: Not Flammable - not combustible
Upper flammability	: Not Flammable - not combustible
Lower flammability	: Not Flammable - not combustible
Relative density	: No data available
Solubility	: Very slight
Partition coefficient	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: Not applicable

	Hydrogen Cyanide	Nitrogen		
Molecular weight (grams)	27.03	28.013		
Boiling point	-195.8 °C	-196 °C		
Vapor pressure	630 mmHg @ 20°C	Above critical temperature		
Vapor density at 20°C	n/a	0.97		
Relative gas density	n/a	1.153		
Critical Temperature	n/a	-146.9 °C		

Section 10. STABILITY AND REACTIVITY

10.1. Reactivity

No reactivity hazard other than the effects described below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

10.4. Conditions to avoid

Strong oxidizing agents, strong acids, strong bases, amines and combustible materials.

10.5. Incompatible materials

None known

10.6. Hazardous decomposition products

Carbon Oxides and Nitrogen Oxides (NOx)

Section 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Nitrogen (7727-37-9)	
LC50 inhalation rat (ppm)	410,000 ppm/4h

Hydrogen cyanide (74-90-8)	
LD50 oral rat (mg/l)	4.21 mg/kg
LD50 dermal rabbit (ppm)	2.34 mg/kg
LC50 inhalation rat (mg/l)	120 mg/m^3 / 1 hour
LC50 inhalation rat (ppm)	140 ppm/1 hour

11.1. Information on routes of exposure

Inhalation	: May displace oxygen and cause rapid suffocation.
Skin contact	: Adverse effects not expected from this product
Eye contact	: Adverse effects not expected from this product
Ingestion	: Ingestion is not considered a potential route of exposure

11.2. Symptoms related to physical, chemical and toxicological characteristics

Symptoms	Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygen-deficient atmosphere (<=18%) 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 bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

11.3. Delayed and immediate effects

Skin corrosion/irritation	: Contact with rapidly expanding gas may cause burns or frostbite. Hydrogen cyanide is acutely toxic when absorbed through the skin.
Serious eye damage/irritation	: Contact with rapidly expanding gas may cause burns or frostbite. Causes eye irritation
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.
Developmental Toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Hydrogen cyanide blocks respiration at the cellular level. Acute poisoning results in weakness, headache, confusion, nausea, and vomiting.
Specific target organ toxicity (repeated exposure)	: Chronic exposure to hydrogen cyanide may cause fatigue and weakness. Long term effects include neurasthenia with autonomic nervous system involvement, psychic alterations, precordal pains, breathlessness on exercise, bradycardia, arterial

	hypotomia, polycythemia, dyspepsia, hepatic impairment, and thyroidal hypo function. May cause liver, kidney, cardiovascular, or central nervous system disorders.
Aspiration hazard	: Not classified Not applicable for gases and gas-mixtures

11.4. Carcinogenic effects

The components of this material are not found on the following lists: FEDERAL OSHA Z LIST, NTP AND IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

Section 12. ECOLOGICAL INFORMATION

12.1. Aquatic Toxicity

Hydrogen cyanide (74-90-8)

LC50 Fish 1	0.082 - 0.137 mg/l (Exposure time: 96 hours - Species: Pimephales promelas (fathead minnow))
LC50 Fish 2	0.024 - 0.035 mg/l (Exposure time: 96 hours - Species: Oncorhynchus mykiss (rainbow trout))
LC50 Fish 3	0.232 - 0.365 mg/l (Exposure time: 96 hours - Species: Leponmis marcrochirus (Bluegill Sunfish))
EC50 Fish	1.8 mg/l (Exposure time: 48 hours - Species: Daphnia magna (Water Flea))

12.2. Persistence and degradability

No information available for the product

12.3. Bioaccumulative potential

No information available for the product

12.4. Mobility in soil

No information available for the product

12.5. Other

No information available for the product

Section 13. DISPOSAL CONSIDERATIONS

13.1. Disposal methods

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14. TRANSPORATION INFORMATION

	US DOT	TDG	IMDG	IATA
UN #	UN 1956	UN 1956	UN 1956	UN 1956
Proper shipping name	Compressed gas, n.o.s. (Nitrogen, Hydrogen Cyanide)	Compressed gas, n.o.s. (Nitrogen, Hydrogen Cyanide)	Compressed gas, n.o.s. (Nitrogen, Hydrogen Cyanide)	Compressed gas, n.o.s. (Nitrogen, Hydrogen Cyanide)
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-
Environment	No.	No.	No.	No.

Section 15. REGULATORY INFORMATION

15.1. US Federal regulations

SARA 311/312 hazard categories

Acute Health	: No
Chronic Health	: No
Fire	: No
Pressure	: Yes
Reactive	: No

Hydrogen cyanide is listed under the accident prevention provisions of section 112R of the Clean Air Act (CAA) with a threshold quantity (TQ) of 2,500 pounds

Hydrogen cyanide is listed as a RCRA hazardous waste P063 (40 CFR 261.33) and D003 (40 CFR 261.23)

The presence of hydrogen cyanide in quantities in excess of the threshold planning quantity (TQP) of 100 pounds requires certain emergency planning activities to be conducted.

Releases of hydrogen cyanide in quantities equal to or greater than the reportable quantity (RQ) of 10 pounds are subject to reporting to the National Response Center under CERCLA, Section 304 SARA Title III.

15.2. US State regulations

Nitrogen (007727-37-9)
U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Right To Know Hazardous Substance List
U.S. - New Jersey - Right To Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right To Know) List
Hydrogen Cyanide (74-90-8)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right To Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right To Know) List

Section 16. OTHER INFORMATION

Date of issue/Date of revision	: New SDS 3/1/2015
Revision Note	: Initial release

Hazardous Material Information System (USA)

Hazard Scale	: 0 = Minimal/ 1 = Slight/ 2 = Moderate/ 3 = Serious/ 4 = Severe
Health	: 1
Fire	: 0
Physical hazards	: 3

Key/Legend	
SARA	Superfund Amendments and Reauthorization Act
OSHA	Occupational Safety and Health Administration
DOT	Department of Transportation
TSCA	Toxic Substance Control Act
NTP	National Toxicology Program
ACGIH	American Conference of Governmental Industrial Hygienists
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TDG	Transportation of Dangerous Goods
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
IATA	International Air Transport Association

IMDG	International Maritime Dangerous Goods
TWA	Time Weighted Average
Prop	Proposition
ATE	Acute Toxicity Estimate
Repr. 2	Reproductive toxicity Category 2

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