

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

1 Identification of substance

- **Product details**

- **Trade name:** BAR-97 High Range Mixture

- **Article number:** 054-05-0007

- **Creation date:** 02/24/2006

- **Manufacturer/Supplier:**

Linde Canada Limited

5860 Chedworth Way

Mississauga, Ontario L5R 0A2

Telephone (905) 501-1700

24-HOUR EMERGENCY TELEPHONE NUMBER:

(905) 501-0802

Linde

575 Mountain Avenue

Murray Hill, NJ 07974

Telephone (908) 464-8100

24-HOUR EMERGENCY TELEPHONE NUMBER:

CHEMTREC (800) 424-9300







- **Information department:** Customer Service Centre: 1-866-385-5349

2 Composition/Data on components



- **Chemical characterization**

- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

630-08-0	Carbon Monoxide	Danger:  2.2/1 Warning:  2.5/C	5- <23%
10102-43-9	Nitric Oxide	Danger:  2.4/1;  3.1.I/2;  3.2/1A Warning:  2.5/C	< 5%

- **Chemical components**

7727-37-9	Nitrogen Gaseous		23-100%
124-38-9	Carbon Dioxide		5- <23%
74-98-6	Propane	Danger:  2.2/1 Warning:  2.5/L	< 5%

3 Hazards identification

- **Hazard description:**



Toxic

- **WHMIS-symbols:**

A - Compressed gas

E - Corrosive material



(Contd. on page 2)

CDN

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 1)

· **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = 3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

· **NFPA ratings (scale 0 - 4)**

3	0	0	Health = 3
			Fire = 0
			Reactivity = 0

· **Information pertaining to particular dangers for man and environment:**

The product has to be labelled due to the calculation procedure of international guidelines.

May cause harm to the unborn child.

Harmful by inhalation.

Causes burns.

Danger of serious damage to health by prolonged exposure.

· **Classification system:**

The classification is in line with internationally approved calculation standards. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

· **GHS label elements**



Danger

3.7/1A - May damage fertility or the unborn child.



Danger

3.2/1B - Causes severe skin burns and eye damage.



Warning

3.1/4 - Harmful if inhaled.

· **Prevention:**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapours/spray.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Use personal protective equipment as required.

· **Response:**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

(Contd. on page 3)

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 2)

Immediately call a POISON CENTER or doctor/physician.
 Call a POISON CENTER or doctor/physician if you feel unwell.
 Specific treatment (see label).
 Wash contaminated clothing before reuse.

· **Storage:**

Store locked up.

· **Disposal:**

Dispose of contents/container in accordance with local/regional/national/international regulations.

* 4 First aid measures

· **General information:**

Immediately remove any clothing soiled by the product.
 Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air. If required, provide artificial respiration and consult doctor. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably on the body side position.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly for at least 15 minutes.

· **After eye contact:** Rinse opened eye for at least 15 minutes under running water. Then consult a doctor.

· **After swallowing:** Not applicable

* 5 Fire fighting measures

· **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Protective equipment:** Wear self-contained respiratory protective device.

* 6 Accidental release measures

· **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation.

Stop leak - ONLY if possible to do so without risk.

· **Measures for environmental protection:**

Prevent seepage into sewage system, workpits and/or cellars.

In case of gas release or seepage into the ground inform responsible authorities.

· **Measures for cleaning/collecting:**

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

CDN

(Contd. on page 4)

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 3)

7 Handling and storage

· **Handling:**

· **Information for safe handling:**

Ensure good ventilation/exhaustion at the workplace.
 Open and handle cylinder with care.
 Handle with care. Avoid jolting, friction, and impact.
 Use only in well ventilated areas.

N/A

N/A

· **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.
 Keep respiratory protective device available.
 Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.

· **Storage:**

· **Requirements to be met by storerooms and receptacles:**

Do not expose cylinder to temperatures higher than 50°C (122 °F)

· **Information about storage in one common storage facility:**

Sources of ignition should be removed from storage area.

· **Further information about storage conditions:**

Keep cylinder valve tightly closed.
 Store cylinder in a well ventilated area.
 Store in accordance with local fire code and/or building code or any pertaining regulations.

8 Exposure controls and personal protection

· **Additional information about design of technical systems:**

Adequate local ventilation.
 Safety showers and eyewash stations should be nearby.

· **Components with limit values that require monitoring at the workplace:**

7727-37-9 Nitrogen Gaseous (23-100%)	
EL	Simple asphyxiant
124-38-9 Carbon Dioxide (5- <23%)	
EL	Short-term value: 15000 ppm Long-term value: 5000 ppm
630-08-0 Carbon Monoxide (5- <23%)	
EL	Short-term value: 100 ppm Long-term value: 25 ppm
	R
74-98-6 Propane (< 5%)	
EL	1000 ppm
10102-43-9 Nitric Oxide (< 5%)	
EL	25 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

(Contd. on page 5)

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 4)

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Protective clothing should be kept free of oil and grease.

PPE should be inspected and maintained regularly to retain its effectiveness.

- **Breathing equipment:**

Use atmosphere-supplying respirators (e.g. supplied-air: demand, pressure-demand, or continuous-flow or self-contained breathing apparatus: demand or pressure-demand or combination supplied-air with auxiliary self-contained air supply atmosphere-supplying respirator) in case of insufficient ventilation.

- **Protection of hands:**



Protective gloves.

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Eye protection:** Safety glasses

9 Physical and chemical properties

- **General Information**

Form: Gaseous.

Color: Colorless

Odor: Odorless

- **Change in condition**

Boiling point/Boiling range: < 0°C

- **Flash point:** Not applicable.

- **Ignition temperature:** 605°C

- **Danger of explosion:** Product does not present an explosion hazard.

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

- **Dangerous reactions** No dangerous reactions known.

- **Dangerous products of decomposition:** No dangerous decomposition products known.

CDN

(Contd. on page 6)

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 5)

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

630-08-0 Carbon Monoxide

Inhalative	LC50/1hr	3760 ppm (rat)
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10102-43-9 Nitric Oxide

Inhalative	LC50/4hr	115 ppm (rat)
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· **Primary irritant effect:**

· **on the skin:** Caustic effect on skin and mucous membranes.

· **on the eye:** Strong caustic effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Corrosive

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

· **General notes:** Must not reach bodies of water or drainage ditch undiluted or unneutralized.

13 Disposal considerations

· **Product:**

· **Recommendation:** Unused product should be returned to vendor.

· **Uncleaned packagings:**

· **Recommendation:**

Cylinder and unused product should be returned to vendor. Disposable cylinder must be disposed of in accordance with local regulations.

· **Recommended cleansing agent:** None applicable.

14 Transport information

· **TDG and DOT regulations:**



· **Hazard class:** 2

· **Identification number:** UN1955

· **Proper shipping name (technical name):** COMPRESSED GAS, TOXIC, N.O.S.

(Contd. on page 7)

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 6)

 · **Label** 2.3

 · **Maritime transport IMDG:**

 · **IMDG Class:** 2
 · **UN Number:** 1955
 · **Label** 2.3
 · **Marine pollutant:** No
 · **Proper shipping name:** COMPRESSED GAS, TOXIC, N.O.S.

 · **Air transport ICAO-TI and IATA-DGR:**

 · **ICAO/IATA Class:** 2
 · **UN/ID Number:** 1955
 · **Label** 2.3
 · **Propper shipping name:** COMPRESSED GAS, TOXIC, N.O.S.

 · **UN "Model Regulation":** UN1955; COMPRESSED GAS, TOXIC, N.O.S.; 2.3

15 Regulations

 · **Sara**

 · **Section 355 (extremely hazardous substances):**

10102-43-9	Nitric Oxide
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 · **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

 · **TSCA (Toxic Substances Control Act):**

124-38-9	Carbon Dioxide
630-08-0	Carbon Monoxide
74-98-6	Propane
10102-43-9	Nitric Oxide

 · **Proposition 65**

 · **Chemicals known to cause cancer:**

None of the ingredients is listed.

 · **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

 · **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

(Contd. on page 8)

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 7)

· **Chemicals known to cause developmental toxicity:**

630-08-0	Carbon Monoxide
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· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**

124-38-9	Carbon Dioxide
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630-08-0	Carbon Monoxide
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74-98-6	Propane
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10102-43-9	Nitric Oxide
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· **Canadian Ingredient Disclosure list (limit 0.1%)**

630-08-0	Carbon Monoxide
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· **Canadian Ingredient Disclosure list (limit 1%)**

124-38-9	Carbon Dioxide
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· **Product related hazard informations:**

The product was classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

· **Hazard symbols:**

Toxic

· **Hazard-determining components of labelling:**

Carbon Monoxide

Nitric Oxide

· **Risk phrases:**

May cause harm to the unborn child.

Harmful by inhalation.

Causes burns.

Danger of serious damage to health by prolonged exposure.

· **Safety phrases:**

Avoid exposure - obtain special instructions before use.

Keep container tightly closed in a cool place.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable protective clothing, gloves and eye/face protection.

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

(Contd. on page 9)

Material Safety Data Sheet

Printing date 07/24/2008

Version 4

Reviewed on 07/24/2008

Trade name: BAR-97 High Range Mixture

(Contd. of page 8)

This material and its container must be disposed of as hazardous waste.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Please refer to the section 3 for NFPA and HMIS Hazard Codes.

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For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between Linde Inc. (or any of its affiliates and subsidiaries) and the purchaser.

· **Department issuing MSDS:** Customer Service Centre: 1-866-385-5349

· **Abbreviations and Acronyms:**

ACGIH: American Conference of Governmental Industrial Hygienists

HMIS: Hazardous Materials Identification System

NFPA: National Fire Protection Association

N/A: Not Applicable

LC50: Lethal Concentration, 50 Percent

LD50: Lethal Dose, 50 Percent

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

WHMIS: Workplace Hazardous Materials Information System (Canada)