

Material Safety Data Sheet

Printing date 10/10/2008

Version 4

Reviewed on 10/10/2008

1 Identification of substance

- **Product details**

- **Trade name: Plasmashield 35H**

- **Article number:** 341-02-0003

- **Creation date:** 10/10/2008

- **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**

- **Dangerous components:**

1333-74-0 Hydrogen

Danger:  2.2/1

23 - 100%

- **Chemical components**

7440-37-1 Argon

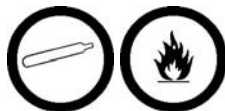
23 - 100%

3 Hazards identification

- **Hazard description:**

- **WHMIS-symbols:**

A - Compressed gas



- **HMIS-ratings (scale 0 - 4)**

HEALTH	0	Health = 0
--------	---	------------

FIRE	4	Fire = 4
------	---	----------

REACTIVITY	0	Reactivity = 0
------------	---	----------------

- **NFPA ratings (scale 0 - 4)**



Health = 0

Fire = 4

Reactivity = 0

- **Information pertaining to particular dangers for man and environment:** Not applicable.

- **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.

(Contd. on page 2)

Material Safety Data Sheet

Printing date 10/10/2008

Version 4

Reviewed on 10/10/2008

Trade name: Plasmashield 35H

(Contd. of page 1)

GHS label elements
**Danger**

2.2/1 - Extremely flammable gas.

**Warning**

2.5/C - Contains gas under pressure; may explode if heated.

Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response:

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

Eliminate all ignition sources if safe to do so.

Storage:

Store in a well-ventilated place.

Protect from sunlight. Store in a well-ventilated place.

4 First aid measures

- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **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.
- **Measures for cleaning/collecting:** Ensure adequate ventilation.
- **Additional information:** No dangerous substances are released.

CDN

(Contd. on page 3)

Material Safety Data Sheet

Printing date 10/10/2008

Version 4

Reviewed on 10/10/2008

Trade name: Plasmashield 35H

(Contd. of page 2)

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
 Handle with care. Avoid jolting, friction, and impact.
 Use only in well ventilated areas.
 Store cylinders upright with valve protection cap in place and firmly secured to prevent falling or being knocked over.
- **Information about protection against explosions and fires:**
 Keep ignition sources away - Do not smoke.
 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:**
 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:**

7440-37-1 Argon (23 - 100%)	
EL	Simple asphyxiant
1333-74-0 Hydrogen (23 - 100%)	
EL	Simple asphyxiant

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 Protective clothing should be kept free of oil and grease.
 PPE should be inspected and maintained regularly to retain it's 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.

(Contd. on page 4)

Material Safety Data Sheet

Printing date 10/10/2008

Version 4

Reviewed on 10/10/2008

Trade name: Plasmashield 35H

(Contd. of page 3)

- **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: -185°C

- **Flash point:** Not applicable.

- **Ignition temperature:** 560°C

- **Danger of explosion:** Product does not present an explosion hazard.
Formation of explosive air/vapor mixtures are possible.

- **Explosion limits:**

Lower:	4.0 Vol %
Upper:	75.6 Vol %

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.

11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:** LC50 > 5000ppm
- **Primary irritant effect:**
- **on the skin:** No irritating effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

CDN

(Contd. on page 5)

Material Safety Data Sheet

Printing date 10/10/2008

Version 4

Reviewed on 10/10/2008

Trade name: Plasmashield 35H

(Contd. of page 4)

12 Ecological information

- **General notes:** Generally not hazardous for water.

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:** UN1954
- **Proper shipping name (technical name):** COMPRESSED GAS, FLAMMABLE, N.O.S.
- **Label:** 2.1

- **Maritime transport IMDG:**



- **IMDG Class:** 2
- **UN Number:** 1954
- **Label:** 2.1
- **Marine pollutant:** No
- **Proper shipping name:** COMPRESSED GAS, FLAMMABLE, N.O.S.

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



- **ICAO/IATA Class:** 2
- **UN/ID Number:** 1954
- **Label:** 2.1
- **Proper shipping name:** COMPRESSED GAS, FLAMMABLE, N.O.S.

(Contd. on page 6)

CDN

Material Safety Data Sheet

Printing date 10/10/2008

Version 4

Reviewed on 10/10/2008

Trade name: Plasmashield 35H

(Contd. of page 5)

· UN "Model Regulation": UN1954, COMPRESSED GAS, FLAMMABLE, N.O.S., 2.1

15 Regulations

· Sara

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

None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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

All ingredients are listed.

· **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.

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

None of the ingredients is listed.

· **Carcinogeny 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)**

All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**

None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**

None of the ingredients is listed.

· **Product related hazard informations:**

Observe the general safety regulations when handling chemicals.

(Contd. on page 7)

Material Safety Data Sheet

Printing date 10/10/2008

Version 4

Reviewed on 10/10/2008

Trade name: Plasmashield 35H

(Contd. of page 6)

The product is not subject to identification regulations according to directives on hazardous materials. 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.

· **Safety phrases:**

Keep in a cool place.

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.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

GENERAL DISCLAIMER

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
 CAS: Chemical Abstract Service (Division of the American Chemical Society)
 DOT: US Department of Transportation
 EINECS: European Inventory of Existing Commercial Chemical Substances
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 HMIS: Hazardous Material Identification System
 IATA: International Air Transportation Association
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transportation Association"
 ICAO: International Civil Aviation Association
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization (ICAO)"
 IMDG: International Marine Code for Dangerous Goods
 WHIMS: Workplace Hazardous Material Information System
 LC50: Lethal Concentration, 50 Percent
 LD50: Lethal Dose, 50 Percent
 N/A: Not Applicable