Material Safety Data Sheet

FUEL CELL

1. Product and company identification

Product name : FUEL CELL

Supplier
Supplier/Manufacturer : Stanley Fastening Systems L.P.
Briggs Drive., East Greenwich, RI 02818
p 401.884.2500

Material uses : Cartridge

Validation date : 03.12.2013.

Print date : 03.12.2013.

Responsible name : Chemical Check GmbH

e-mail address of person responsible for this SDS : info@chemical-check.de; k.schnurbusch@chemical-check.de

In case of emergency : For Chemical Emergency, Spill, Leak, Exposure or accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

Product type : Gas.

2. Hazards identification

Physical state : Gas. [Liquefied gas]

Odor : Characteristic.

Emergency overview : DANGER!

FLAMMABLE GAS. MAY CAUSE FLASH FIRE. HIGH PRESSURE GAS. MAY CAUSE EYE IRRITATION. GAS REDUCES OXYGEN AVAILABLE FOR BREATHING. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS, BASED ON ANIMAL DATA.

Contains gas under pressure. Flammable gas. Flammable material In a fire or if heated, a pressure increase will occur and the container may burst or explode. Slightly irritating to the eyes. Simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. Keep away from heat, sparks and flame. Do not puncture or incinerate container. Do not enter storage areas and confined spaces unless adequately ventilated. Avoid exposure - obtain special instructions before use. Do not breathe gas. Avoid contact with eyes, skin and clothing. Contains material that may cause target organ damage, based on animal data. Contains material which may cause heritable genetic effects, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Eye contact. Inhalation.

Potential acute health effects

Inhalation : At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

Ingestion : As this product is a gas, refer to the inhalation section.

Skin : Contact with rapidly expanding gas may cause burns or frostbite.

Eyes : Slightly irritating to the eyes. Contact with rapidly expanding gas may cause burns or frostbite.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : Contains material which may cause heritable genetic effects, based on animal data.

Teratogenicity : No known significant effects or critical hazards.

2. Hazards identification

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Target organs : Contains material which may cause damage to the following organs: central nervous system (CNS).

Over-exposure signs/symptoms

Inhalation : No specific data.

Ingestion : No specific data.

Skin : No specific data.

Eyes : Adverse symptoms may include the following:
irritation
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

Name	CAS number	%
but-1-ene	106-98-9	30-60
propylene	115-07-1	30-60

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : As this product is a gas, refer to the inhalation section.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

Flammability of the product : Contains gas under pressure. Flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Not available.

Special remarks on explosion hazards : Not available.

6. Accidental release measures

Personal precautions : Accidental releases pose a serious fire or explosion hazard. Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.

7. Handling and storage

Storage : Do not store above the following temperature: 50°C (122°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use.

8. Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
but-1-ene	US ACGIH 2/2010	250	-	-	-	-	-	-	-	-	
	BC 10/2009	250	-	-	-	-	-	-	-	-	
propylene	US ACGIH 2/2010	500	-	-	-	-	-	-	-	-	
	AB 4/2009	500	860	-	-	-	-	-	-	-	
	BC 10/2009	500	-	-	-	-	-	-	-	-	
	ON 7/2010	500	-	-	-	-	-	-	-	-	

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. If operating conditions cause high gas concentrations to be produced or any recommended or statutory exposure limit is exceeded, use an air-fed respirator or self-contained breathing apparatus. The gas can cause asphyxiation without warning by replacing the oxygen in the air. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: Use appropriate respiratory protection if there is a risk of exceeding any exposure limits. organic vapor filter (Type AX) self-contained breathing apparatus (SCBA)

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

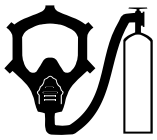
Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: Long-sleeved protective clothing. Safety shoes.

8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Other protection : Not available.

Personal protective equipment (Pictograms) :



9. Physical and chemical properties

Physical state : Gas. [Liquefied gas]

Flash point : Not available.

Burning time : Not applicable.

Burning rate : Not applicable.

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Colorless.

Odor : Characteristic.

Taste : Not available.

Molecular weight : Not applicable.

Molecular formula : Not applicable.

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Critical temperature : Not available.

Relative density : Not available.

Vapor pressure : 1799,9 kPa (13500 mm Hg)

Vapor density : <1 [Air = 1]

Volatility : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

SADT : Not available.

Viscosity : Not available.

Ionicity (in water) : Not available.

Dispersibility properties : Not available.

Solubility : Not available.

Physical/chemical properties comments : Not available.

10. Stability and reactivity

Chemical stability : The product is stable.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.

Materials to avoid :

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

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

Acute toxicity

Not available.

Conclusion/Summary : Not available.

Chronic toxicity

Not available.

Conclusion/Summary : Not available.

Irritation/Corrosion

Not available.

Conclusion/Summary : Not available.

Sensitizer

Not available.

Conclusion/Summary : Not available.

Carcinogenicity

Not available.

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
propylene	A4	3	-	-	-	-

Mutagenicity

Not available.

Conclusion/Summary : Not available.

Teratogenicity

Not available.

Conclusion/Summary : Not available.

Reproductive toxicity

Not available.

Conclusion/Summary : Not available.

Synergistic products : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Aquatic ecotoxicity

Not available.

Conclusion/Summary : Not available.

Persistence/degradability

Not available.

Conclusion/Summary : Not available.

Octanol/water partition coefficient : Not available.

Bioconcentration factor : Not available.

Mobility : Not available.

Toxicity of the products of biodegradation : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Do not puncture or incinerate container. Empty pressure vessels should be returned to the supplier.

Waste stream : Not available.

RCRA classification : Not available.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1075	PETROLEUM GASES, LIQUEFIED	2.1	-		**Explosive Limit and Limited Quantity Index** 0.12 **ERAP Index** 3000 **Passenger Carrying Ship Index** 65 **Passenger Carrying Road or Rail Index** Forbidden

14. Transport information

IMDG Class	UN1075	PETROLEUM GASES, LIQUEFIED	2.1	-		**Emergency schedules (EmS)** _F-D_, S-U
IATA-DGR Class	UN1075	Petroleum gases, liquefied	2.1	-		**Passenger and Cargo Aircraft** Quantity limitation: Forbidden Packaging instructions: Forbidden **Cargo Aircraft Only** Quantity limitation: 150 kg Packaging instructions: 200 **Limited Quantities - Passenger Aircraft** Quantity limitation: Forbidden Packaging instructions: Forbidden

PG* : Packing group

15. Regulatory information

United States inventory (TSCA 8b) : All components are listed or exempted.

WHMIS (Canada) : Class A: Compressed gas.
Class B-1: Flammable gas.
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : The following components are listed: Butene; Propylene

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

15. Regulatory information

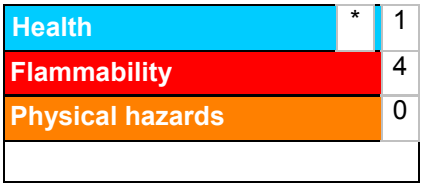
Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : FLAMMABLE GAS. MAY CAUSE FLASH FIRE. HIGH PRESSURE GAS. MAY CAUSE EYE IRRITATION. GAS REDUCES OXYGEN AVAILABLE FOR BREATHING. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

References : Not available.

Other special considerations : Not available.

Date of printing : **03.12.2013.**

Date of issue : 03.12.2013.

Date of previous issue : No previous validation.

Version : 1

Indicates information that has changed from previously issued version.

Notice to reader

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