

# SAFETY DATA SHEET



RGA Checkout Sample with Argon, Part Number 5190-0519

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Product name** : RGA Checkout Sample with Argon, Part Number 5190-0519  
**Part No.** : 5190-0519

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

Identified uses
Analytical chemistry. Cylinder

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG  
Hewlett-Packard-Str. 8  
76337 Waldbronn  
Germany  
0800 603 1000

**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +(44)-870-8200418

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

H220 FLAMMABLE GASES - Category 1  
H280 GASES UNDER PRESSURE - Compressed gas  
H340 GERM CELL MUTAGENICITY - Category 1B  
H350 CARCINOGENICITY - Category 1A  
H360D TOXIC TO REPRODUCTION (Unborn child) - Category 1A  
H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

**Ingredients of unknown toxicity** : Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 5.5%

**Ingredients of unknown ecotoxicity** : Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5.5%

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard pictograms** :



**Signal word** : Danger

**Date of issue/Date of revision** : 31/05/2016

## SECTION 2: Hazards identification

- Hazard statements** : H220 - Extremely flammable gas.  
H280 - Contains gas under pressure; may explode if heated.  
H340 - May cause genetic defects.  
H350 - May cause cancer.  
H360D - May damage the unborn child.  
H373 - May cause damage to organs through prolonged or repeated exposure.
- Precautionary statements**
- Prevention** : P201 - Obtain special instructions before use.  
P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.  
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260 - Do not breathe gas.
- Response** : P314 - Get medical attention if you feel unwell.  
P308 + P313 - IF exposed or concerned: Get medical attention.
- Storage** : P410 - Protect from sunlight.
- Disposal** : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazardous ingredients** : Carbon monoxide  
1,3-Butadiene
- Supplemental label elements** : Not applicable.
- Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Restricted to professional users.
- Special packaging requirements**
- Tactile warning of danger** : Not applicable.

### 2.3 Other hazards

- Other hazards which do not result in classification** : Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Type
Carbon dioxide	EC: 204-696-9 CAS: 124-38-9	≤5	Press. Gas Comp. Gas, H280	[2]
Ethylene	EC: 200-815-3 CAS: 74-85-1 Index: 601-010-00-3	≤3	Flam. Gas 1, H220 Press. Gas Comp. Gas, H280 STOT SE 3, H336	[1] [2]
Carbon monoxide	EC: 211-128-3 CAS: 630-08-0 Index: 006-001-00-2	≤3	Flam. Gas 1, H220 Press. Gas Comp. Gas, H280 Acute Tox. 3, H331 Repr. 1A, H360D (Unborn child) STOT RE 1, H372	[1] [2]
Propyne	EC: 200-828-4 CAS: 74-99-7	≤3	Flam. Gas 1, H220 Press. Gas Liq. Gas, H280 STOT SE 3, H335 STOT SE 3, H336	[1]
Butane	EC: 203-448-7 CAS: 106-97-8 Index: 601-004-00-0	≤1	Flam. Gas 1, H220 Press. Gas Comp. Gas, H280	[2]
1,3-Butadiene	EC: 203-450-8	≤1	Flam. Gas 1, H220	[1] [2]

**SECTION 3: Composition/information on ingredients**

	CAS: 106-99-0 Index: 601-013-00-X		Press. Gas Comp. Gas, H280 Muta. 1B, H340 Carc. 1A, H350 <b>See Section 16 for the full text of the H statements declared above.</b>
--	--------------------------------------	--	---

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.

Type

- [1] Substance classified with a health or environmental hazard  
 [2] Substance with a workplace exposure limit  
 [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII  
 [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII  
 [5] Substance of equivalent concern

**SECTION 4: First aid measures****4.1 Description of first aid measures**

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**4.2 Most important symptoms and effects, both acute and delayed**Potential acute health effects

- Eye contact** : Contact with rapidly expanding gas may cause burns or frostbite.
- Inhalation** : At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
- Skin contact** : Contact with rapidly expanding gas may cause burns or frostbite.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:  
 reduced foetal weight  
 increase in foetal deaths  
 skeletal malformations

**SECTION 4: First aid measures**

- Skin contact** : Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

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

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

**5.2 Special hazards arising from the substance or mixture**

- Hazards from the substance or mixture** : Contains gas under pressure. Extremely 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.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

**5.3 Advice for firefighters**

- Special precautions for fire-fighters** : 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. Eliminate all ignition sources if safe to do so.
- 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

- For non-emergency personnel** : Accidental releases pose a serious fire or explosion hazard. 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.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

## SECTION 6: Accidental release measures

**6.2 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).

### 6.3 Methods and material for containment and cleaning up

**Methods for cleaning up** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

**6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe 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 only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.

**Advice on general occupational hygiene** : 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**7.2 Conditions for safe storage, including any incompatibilities** : Do not store above the following temperature: 51.667°C (125°F). Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use.

### Seveso Directive - Reporting thresholds (in tonnes)

#### Named substances

Name	Notification and MAPP threshold	Safety report threshold
Hydrogen	5	50
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas	50	200
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas	50	200
Acetylene	5	50
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas	50	200
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas	50	200

#### Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P2: Flammable gases	10	50

### 7.3 Specific end use(s)

**Recommendations** : Industrial applications, Professional applications.

## SECTION 7: Handling and storage

**Industrial sector specific solutions** : Not applicable.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
Carbon dioxide	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> STEL: 27400 mg/m <sup>3</sup> 15 minutes. STEL: 15000 ppm 15 minutes. TWA: 9150 mg/m <sup>3</sup> 8 hours. TWA: 5000 ppm 8 hours.
Carbon monoxide	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> STEL: 232 mg/m <sup>3</sup> 15 minutes. STEL: 200 ppm 15 minutes. TWA: 30 ppm 8 hours. TWA: 35 mg/m <sup>3</sup> 8 hours.
Butane	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> STEL: 1810 mg/m <sup>3</sup> 15 minutes. STEL: 750 ppm 15 minutes. TWA: 1450 mg/m <sup>3</sup> 8 hours. TWA: 600 ppm 8 hours.
1,3-Butadiene	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 10 ppm 8 hours. TWA: 22 mg/m <sup>3</sup> 8 hours.

**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. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### DNELs/DMELs

No DNELs/DMELs available.

#### PNECs

No PNECs available

### 8.2 Exposure controls

**Appropriate engineering controls** : 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, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

#### Individual protection measures

**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.



**SECTION 8: Exposure controls/personal protection**

- Eye/face protection** : 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, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- 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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : The gas can cause asphyxiation without warning by replacing the oxygen in the air. Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. 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. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. 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.
- 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.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****Appearance**

- Physical state** : Gas.
- Colour** : Colourless.
- Odour** : Not available.
- Odour threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
- Upper/lower flammability or explosive limits** : Not available.
- Vapour pressure** : Not available.
- Vapour density** : Not available.
- Relative density** : 1 [Air = 1]
- Density** : 1 g/cm<sup>3</sup> [21.1°C (70°F)]

**SECTION 9: Physical and chemical properties**

<b>Solubility(ies)</b>	: Not available.
<b>Partition coefficient: n-octanol/water</b>	: Not available.
<b>Auto-ignition temperature</b>	: Not available.
<b>Decomposition temperature</b>	: Not available.
<b>Viscosity</b>	: Not available.
<b>Explosive properties</b>	: Not available.
<b>Oxidising properties</b>	: Not available.

**9.2 Other information**

No additional information.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: Hazardous reactions or instability may occur under certain conditions of storage or use.
<b>10.4 Conditions to avoid</b>	: Avoid all possible sources of ignition (spark or flame). Do not pressurise, 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.
<b>10.5 Incompatible materials</b>	: May react or be incompatible with oxidising materials.  Incompatible with: moisture. May react vigorously with water.
<b>10.6 Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
Carbon monoxide	LC50 Inhalation Gas.	Rat	1900 mg/m <sup>3</sup>	4 hours
	LC50 Inhalation Gas.	Rat	1807 ppm	4 hours
1,3-Butadiene	LC50 Inhalation Vapour	Rat	285 g/m <sup>3</sup>	4 hours
	LC50 Inhalation Vapour	Rat	128000 ppm	4 hours
	LD50 Oral	Rat	5480 mg/kg	-

**Acute toxicity estimates**

Route	ATE value
Inhalation (gases)	120466.7 ppm

**Irritation/Corrosion**

**Conclusion/Summary** : Not available.

**Sensitiser**

**Conclusion/Summary** : Not available.

**Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity**

Not available.

**Specific target organ toxicity (single exposure)**



**SECTION 11: Toxicological information**

Product/ingredient name	Category	Route of exposure	Target organs
Ethylene Propyne	Category 3 Category 3	Not applicable. Not applicable.	Narcotic effects Respiratory tract irritation and Narcotic effects

**Specific target organ toxicity (repeated exposure)**

Product/ingredient name	Category	Route of exposure	Target organs
Carbon monoxide	Category 1	Not determined	Not determined

**Aspiration hazard**

Not available.

**Information on likely routes of exposure** : Routes of entry anticipated: Oral, Dermal, 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** : Contact with rapidly expanding gas may cause burns or frostbite.
- Eye contact** : Contact with rapidly expanding gas may cause burns or frostbite.

**Symptoms related to the physical, chemical and toxicological characteristics**

- Inhalation** : Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations
- Eye contact** : No specific data.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Short term exposure**

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

**Long term exposure**

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

**Potential chronic health effects**

- General** : May cause damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : May cause genetic defects.
- Teratogenicity** : May damage the unborn child.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

**SECTION 12: Ecological information****12.1 Toxicity****Conclusion/Summary** : Not available.**12.2 Persistence and degradability**




Not available.

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Carbon dioxide	0.83	-	low
Ethylene	1.13	-	low
Propyne	0.94	-	low
1,3-Butadiene	1.99	10	low

**12.4 Mobility in soil****Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.**Mobility** : Not available.**12.5 Results of PBT and vPvB assessment****PBT** : Not applicable.**vPvB** : Not applicable.**12.6 Other adverse effects** : No known significant effects or critical hazards.**SECTION 13: Disposal considerations****13.1 Waste treatment methods**Product**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.**Hazardous waste** : Yes.Packaging**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.**Special precautions** : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.**SECTION 14: Transport information****Additional information** : **Special provisions**  
274

## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1954	UN1954	UN1954
14.2 UN proper shipping name	COMPRESSED GAS, FLAMMABLE, N.O.S. (Hydrogen, Methane)	COMPRESSED GAS, FLAMMABLE, N.O.S. (Hydrogen, Methane)	Compressed gas, flammable, n.o.s. (Hydrogen, Methane)
14.3 Transport hazard class(es)	2 	2.1 	2.1 
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.
Additional information	<p><b>Hazard identification number</b> 23</p> <p><b>Limited quantity</b> 0</p> <p><b>Special provisions</b> 274, 660, 662</p> <p><b>Tunnel code</b> (B/D)</p>	<p><b>Emergency schedules (EmS)</b> F-D, S-U</p> <p><b>Special provisions</b> 274</p>	<p><b>Passenger and Cargo Aircraft</b> Quantity limitation: Forbidden Packaging instructions: Forbidden</p> <p><b>Cargo Aircraft Only</b> Quantity limitation: 150 kg Packaging instructions: 200</p> <p><b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: Forbidden Packaging instructions: Forbidden</p> <p><b>Special provisions</b> A1</p> <p><b>Remarks</b> Requires Shipper's Declaration of Dangerous Goods</p>

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code** : Not available.

## SECTION 15: Regulatory information

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

[EU Regulation \(EC\) No. 1907/2006 \(REACH\)](#)

[Annex XIV - List of substances subject to authorisation](#)

[Annex XIV](#)

None of the components are listed.

[Substances of very high concern](#)

None of the components are listed.

**SECTION 15: Regulatory information**

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Restricted to professional users.

**Other EU regulations**

**Europe inventory** : All components are listed or exempted.

**Industrial emissions (integrated pollution prevention and control) - Air** : Listed

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
carbon monoxide	-	-	Repr. 1A, H360D (Unborn child)	-
1,3-butadiene	Carc. 1A, H350	Muta. 1B, H340	-	-

**Seveso Directive**

This product is controlled under the Seveso Directive.

**Named substances****Name**

Hydrogen  
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas  
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas  
Acetylene  
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas  
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas

**Danger criteria****Category**

P2: Flammable gases

**National regulations**

Product/ingredient name	List name	Name on list	Classification	Notes
butane	UK Occupational Exposure Limits EH40 - WEL	butane	Carc.	-
1,3-butadiene	UK Occupational Exposure Limits EH40 - WEL	buta-1,3-diene; 1,3-butadiene	Carc.	-

**International regulations****Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

**Montreal Protocol (Annexes A, B, C, E)**

Not listed.

**Stockholm Convention on Persistent Organic Pollutants**

Not listed.

**Rotterdam Convention on Prior Inform Consent (PIC)**

Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

**International lists**

**SECTION 15: Regulatory information**National inventory

<b>Australia</b>	: Not determined.
<b>Canada</b>	: All components are listed or exempted.
<b>China</b>	: Not determined.
<b>Japan</b>	: <b>Japan inventory (ENCS)</b> : Not determined. <b>Japan inventory (ISHL)</b> : Not determined.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: Not determined.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: All components are listed or exempted.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: All components are listed or exempted.

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

**SECTION 16: Other information**

✔ Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Gas 1, H220	On basis of test data
Press. Gas Comp. Gas, H280	On basis of test data
Muta. 1B, H340	Calculation method
Carc. 1A, H350	Calculation method
Repr. 1A, H360D (Unborn child)	Calculation method
STOT RE 2, H373	Calculation method

**Full text of abbreviated H statements** : H220 Extremely flammable gas.  
H280 Contains gas under pressure; may explode if heated.  
H331 Toxic if inhaled.  
H335 May cause respiratory irritation.  
H336 May cause drowsiness or dizziness.  
H340 May cause genetic defects.  
H350 May cause cancer.  
H360D (Unborn child) May damage the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H373 May cause damage to organs through prolonged or repeated exposure.

**Full text of classifications [CLP/GHS]** : Acute Tox. 3, H331 ACUTE TOXICITY (inhalation) - Category 3  
Carc. 1A, H350 CARCINOGENICITY - Category 1A  
Flam. Gas 1, H220 FLAMMABLE GASES - Category 1  
Muta. 1B, H340 GERM CELL MUTAGENICITY - Category 1B  
Press. Gas Comp. Gas, H280 GASES UNDER PRESSURE - Compressed gas  
Press. Gas Liq. Gas, H280 GASES UNDER PRESSURE - Liquefied gas  
Repr. 1A, H360D (Unborn child) TOXIC TO REPRODUCTION (Unborn child) - Category 1A  
STOT RE 1, H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED)

**SECTION 16: Other information**

STOT RE 2, H373	EXPOSURE) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

**Date of issue/ Date of revision** : 31/05/2016

**Date of previous issue** : No previous validation.

**Version** : 1

**Notice to reader**

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.