SAFETY DATA SHEET

Agilent Technologies

Universal RGA Calibration Mix Cylinder Combo Box, Part Number 5184-3545

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

1.1 Product identifier

Product name : Universal RGA Calibration Mix Cylinder Combo Box, Part Number 5184-3545

Part no. (chemical kit) : 5184-3545

Part no. : Praxair RGA Calibration Mix Cylinders 5184-3543
Universal Gas Mix 5183-4800

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

Identified uses : Reagents and Standards for Analytical Chemistry Laboratory Use

Praxair RGA Calibration Mix Cylinders	1 L
Universal Gas Mix	1 L

Uses advised against : None known.

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Deutschland GmbH
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 : Praxair RGA Calibration Mix Cylinders Mixture
Universal Gas Mix Mixture

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

Praxair RGA Calibration Mix Cylinders

H220	FLAMMABLE GASES	Category 1A
H280	GASES UNDER PRESSURE	Compressed gas
H340	GERM CELL MUTAGENICITY	Category 1B
H350	CARCINOGENICITY	Category 1A
H360D	REPRODUCTIVE TOXICITY	Category 1A
H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE	Category 2

Universal Gas Mix

H220	FLAMMABLE GASES	Category 1A
H280	GASES UNDER PRESSURE	Compressed gas

Praxair RGA Calibration Mix Cylinders	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.
Universal Gas Mix	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

SECTION 2: Hazards identification

Ingredients of unknown toxicity : Praxair RGA Calibration Mix Cylinders

Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%

Ingredients of unknown ecotoxicity :

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 : Praxair RGA Calibration Mix Cylinders

Universal Gas Mix

Signal word : Praxair RGA Calibration Mix Cylinders: Danger

Universal Gas Mix: Danger

Hazard statements : Praxair RGA Calibration Mix Cylinders

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.

Universal Gas Mix

H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.

Precautionary statements

Prevention : Praxair RGA Calibration Mix Cylinders

P201 - Obtain special instructions before use.
P280 - Wear protective gloves, protective clothing and eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Universal Gas Mix

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Praxair RGA Calibration Mix Cylinders

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

Universal Gas Mix

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - In case of leakage, eliminate all ignition sources.

Storage : Praxair RGA Calibration Mix Cylinders

P403 - Store in a well-ventilated place.

Universal Gas Mix

P403 - Store in a well-ventilated place.

Disposal : Praxair RGA Calibration Mix Cylinders

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Universal Gas Mix

Not applicable.

Hazardous ingredients : Praxair RGA Calibration Mix Cylinders

carbon monoxide and 1,3-butadiene

SECTION 2: Hazards identification

Supplemental label elements

: Praxair RGA Calibration Mix Cylinders — Not applicable.

Universal Gas Mix — Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

: Praxair RGA Calibration Mix Cylinders — Restricted to professional users.

Universal Gas Mix — Not applicable.

Special packaging requirements

Tactile warning of danger

: Praxair RGA Calibration Mix Cylinders — Not applicable.

Universal Gas Mix — Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

: Praxair RGA Calibration Mix Cylinders — This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Universal Gas Mix — This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification

: Praxair RGA Calibration Mix Cylinders — Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

Universal Gas Mix — 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

3.1 Substances

: Praxair RGA Calibration Mix Cylinders — Mixture

Universal Gas Mix — Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
Praxair RGA Calibration Mix Cylinders					
nitrogen	REACH #: Annex IV EC: 231-783-9 CAS: 7727-37-9	≥50 - ≤75	Press. Gas (Comp.), H280	-	[2]
hydrogen	REACH #: Annex V EC: 215-605-7 CAS: 1333-74-0 Index: 001-001-00-9	≥10 - ≤25	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
methane	REACH #: Annex V EC: 200-812-7 CAS: 74-82-8 Index: 601-001-00-4	≤10	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
ethane	EC: 200-814-8 CAS: 74-84-0 Index: 601-002-00-X	≤5	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
carbon dioxide	REACH #: Annex IV EC: 204-696-9 CAS: 124-38-9	≤5	Press. Gas (Comp.), H280	-	[2]
ethylene	EC: 200-815-3 CAS: 74-85-1	≤3	Flam. Gas 1A, H220 Press. Gas (Comp.),	-	[1] [2]

SECTION 3: Composition/information on ingredients

	Index: 601-010-00-3		H280 STOT SE 3, H336		
propane	EC: 200-827-9 CAS: 74-98-6 Index: 601-003-00-5	≤3	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
carbon monoxide	EC: 211-128-3 CAS: 630-08-0 Index: 006-001-00-2	≤3	Flam. Gas 1A, H220 Press. Gas (Comp.), H280 Acute Tox. 3, H331 Repr. 1A, H360D STOT RE 1, H372	ATE [Inhalation (gases)] = 1807 ppm	[1] [2]
acetylene	EC: 200-816-9 CAS: 74-86-2 Index: 601-015-00-0	≤3	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
propyne	EC: 200-828-4 CAS: 74-99-7	≤3	Flam. Gas 1A, H220 Press. Gas (Comp.), H280 STOT SE 3, H335	-	[1] [2]
propene	EC: 204-062-1 CAS: 115-07-1 Index: 601-011-00-9	≤3	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
1,3-butadiene	EC: 203-450-8 CAS: 106-99-0 Index: 601-013-00-X	≤1	Flam. Gas 1A, H220 Press. Gas (Comp.), H280 Muta. 1B, H340 Carc. 1A, H350	-	[1] [2]
butane	EC: 203-448-7 CAS: 106-97-8 Index: 601-004-00-0	≤1	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
(Z)-but-2-ene	EC: 209-673-7 CAS: 590-18-1 Index: 601-012-00-4	≤1	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
but-1-ene	EC: 203-449-2 CAS: 106-98-9 Index: 601-012-00-4	≤1	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
isobutane	EC: 200-857-2 CAS: 75-28-5 Index: 601-004-00-0	≤1	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
2-methylpropene	EC: 204-066-3 CAS: 115-11-7 Index: 601-012-00-4	≤1	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
(E)-but-2-ene	EC: 210-855-3 CAS: 624-64-6 Index: 601-012-00-4	≤1	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
Universal Gas Mix					
methane	REACH #: Annex V EC: 200-812-7 CAS: 74-82-8 Index: 601-001-00-4	≥90	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[2]
carbon monoxide	EC: 211-128-3	≤0.2	Flam. Gas 1A, H220	ATE [Inhalation	[1] [2]

SECTION 3: Composition/information on ingredients

	CAS: 630-08-0 Index: 006-001-00-2		Press. Gas (Comp.), H280 Acute Tox. 3, H331 Repr. 1A, H360D STOT RE 1, H372 **See Section 16 for the full text of the H statements declared above.**	(gases)] = 1807 ppm	

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

Praxair RGA Calibration Mix Cylinders	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit
Universal Gas Mix	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

: Praxair RGA Calibration Mix Cylinders: 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.

Universal Gas Mix: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation

: Praxair RGA Calibration Mix Cylinders: Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.

Universal Gas Mix: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin contact

: Praxair RGA Calibration Mix Cylinders: 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.

Universal Gas Mix: 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. Get medical attention if symptoms occur.

Ingestion

: Praxair RGA Calibration Mix Cylinders: As this product is a gas, refer to the inhalation section.

Universal Gas Mix: As this product is a gas, refer to the inhalation section.

SECTION 4: First aid measures

Protection of first-aiders	:	Praxair RGA Calibration Mix Cylinders	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.
		Universal Gas Mix	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	:	Praxair RGA Calibration Mix Cylinders	Contact with rapidly expanding gas may cause burns or frostbite.
		Universal Gas Mix	Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	:	Praxair RGA Calibration Mix Cylinders	No known significant effects or critical hazards.
		Universal Gas Mix	No known significant effects or critical hazards.
Skin contact	:	Praxair RGA Calibration Mix Cylinders	Contact with rapidly expanding gas may cause burns or frostbite.
		Universal Gas Mix	Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion	:	Praxair RGA Calibration Mix Cylinders	As this product is a gas, refer to the inhalation section.
		Universal Gas Mix	As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact	:	Praxair RGA Calibration Mix Cylinders	No specific data.
		Universal Gas Mix	No specific data.
Inhalation	:	Praxair RGA Calibration Mix Cylinders	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
		Universal Gas Mix	No specific data.
Skin contact	:	Praxair RGA Calibration Mix Cylinders	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
		Universal Gas Mix	No specific data.
Ingestion	:	Praxair RGA Calibration Mix Cylinders	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
		Universal Gas Mix	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	Praxair RGA Calibration Mix Cylinders	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.
		Universal Gas Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	Praxair RGA Calibration Mix Cylinders	No specific treatment.
		Universal Gas Mix	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media :

Praxair RGA Calibration Mix Cylinders: Use an extinguishing agent suitable for the surrounding fire.

Universal Gas Mix: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media :

Praxair RGA Calibration Mix Cylinders: None known.

Universal Gas Mix: None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :

Praxair RGA Calibration Mix Cylinders: 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.

Universal Gas Mix: 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 :

Praxair RGA Calibration Mix Cylinders: Decomposition products may include the following materials:

carbon dioxide
carbon monoxide
nitrogen oxides

Universal Gas Mix: Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

5.3 Advice for firefighters

Special precautions for fire-fighters :

Praxair RGA Calibration Mix Cylinders: 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.

Universal Gas Mix: 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 :

Praxair RGA Calibration Mix Cylinders: 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.

Universal Gas Mix: 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 :

Praxair RGA Calibration Mix Cylinders: 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.

Universal Gas Mix: 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. Put on appropriate personal protective equipment.

For emergency responders :

Praxair RGA Calibration Mix Cylinders: 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".

Universal Gas Mix: 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".

6.2 Environmental precautions :

Praxair RGA Calibration Mix Cylinders: 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).

Universal Gas Mix: 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 :

Praxair RGA Calibration Mix Cylinders: Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Universal Gas Mix: 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 :

Praxair RGA Calibration Mix Cylinders: 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

SECTION 7: Handling and storage

		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.
	Universal Gas Mix	Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and 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 only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.
Advice on general occupational hygiene :	Praxair RGA Calibration Mix Cylinders	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.
	Universal Gas Mix	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

Storage :	Praxair RGA Calibration Mix Cylinders	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. See Section 10 for incompatible materials before handling or use.
	Universal Gas Mix	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). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
Praxair RGA Calibration Mix Cylinders P2	10 tonne	50 tonne
Universal Gas Mix P2	10 tonne	50 tonne

7.3 Specific end use(s)

Recommendations :	Praxair RGA Calibration Mix Cylinders	Industrial applications, Professional applications.
	Universal Gas Mix	Industrial applications, Professional applications.

SECTION 7: Handling and storage

Industrial sector specific solutions	:	Praxair RGA Calibration Mix Cylinders	Not available.
		Universal Gas Mix	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Praxair RGA Calibration Mix Cylinders	
Nitrogen	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)**
hydrogen	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)**
methane	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)**
ethane	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)**
Carbon dioxide	**NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values** OELV-8hr: 5000 ppm 8 hours. OELV-8hr: 9000 mg/m³ 8 hours. OELV-15min: 15000 ppm 15 minutes. OELV-15min: 27000 mg/m³ 15 minutes.
ethylene	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 200 ppm 8 hours.
propane	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)**
carbon monoxide	**NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values** OELV-8hr: 20 ppm 8 hours. OELV-8hr: 23 mg/m³ 8 hours. OELV-15min: 100 ppm 15 minutes. OELV-15min: 117 mg/m³ 15 minutes.
acetylene	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)**
Propyne	**NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 1610 mg/m³ 8 hours. OELV-8hr: 1000 ppm 8 hours.
propene	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant]. Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 500 ppm 8 hours.
1,3-butadiene	**NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 1 ppm 8 hours. OELV-8hr: 2.2 mg/m³ 8 hours.
butane	**NAOSH (Ireland, 5/2021). [butane all isomers] Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-15min: 1000 ppm 15 minutes.
(Z)-but-2-ene	**NAOSH (Ireland, 5/2021). [butenes all isomers incl. isobutene] Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 250 ppm 8 hours.
but-1-ene	**NAOSH (Ireland, 5/2021). [butenes all isomers incl. isobutene] Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 250 ppm 8 hours.
isobutane	**NAOSH (Ireland, 5/2021). [butane all isomers] Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-15min: 1000 ppm 15 minutes.
2-methylpropene	**NAOSH (Ireland, 5/2021). [butenes all isomers incl. isobutene]**

SECTION 8: Exposure controls/personal protection

	Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 250 ppm 8 hours.
(E)-but-2-ene	**NAOSH (Ireland, 5/2021). [butenes all isomers incl. isobutene]** **Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 250 ppm 8 hours.
Universal Gas Mix	
methane	**NAOSH (Ireland, 5/2021). Oxygen Depletion [Asphyxiant].** **Notes: Advisory Occupational Exposure Limit Values (OELVs)**
carbon monoxide	**NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values** OELV-8hr: 20 ppm 8 hours. OELV-8hr: 23 mg/m³ 8 hours. OELV-15min: 100 ppm 15 minutes. OELV-15min: 117 mg/m³ 15 minutes.

Biological exposure indices

Product/ingredient name	Exposure indices
Praxair RGA Calibration Mix Cylinders	
carbon monoxide	**NAOSH (Ireland, 1/2011)** BMGV: 3.5 % of haemoglobin, COHb [in blood]. Sampling time: end of shift - As soon as possible after exposure ceases. BMGV: 20 ppm, CO [in endexhaled air]. Sampling time: end of shift - As soon as possible after exposure ceases.
1,3-butadiene	**NAOSH (Ireland, 1/2011)** BMGV: 2.5 pmol/g haemoglobin [Semi-quantitative, the biological analyte is an indicator of exposure to the substance but the quantitative interpretation of the measurement is ambiguous. These analytes should be used as a screening test if a quantitative test is not practical; or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question.], mixture of N-1 and N-2-(hydroxybutenyl) valine haemoglobin adducts [in blood]. Sampling time: not critical. BMGV: 2.5 mg/l [Semi-quantitative, the biological analyte is an indicator of exposure to the substance but the quantitative interpretation of the measurement is ambiguous. These analytes should be used as a screening test if a quantitative test is not practical; or as a confirmatory test if the quantitative test is not specific and the origin of the determinant is in question.], 1,2 dihydroxy-4-(N-acetylcysteinyl)-butane [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases.
Universal Gas Mix	
carbon monoxide	**NAOSH (Ireland, 1/2011)** BMGV: 3.5 % of haemoglobin, COHb [in blood]. Sampling time: end of shift - As soon as possible after exposure ceases. BMGV: 20 ppm, CO [in endexhaled air]. Sampling time: end of shift - As soon as possible after exposure ceases.

Recommended monitoring procedures : 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.

SECTION 8: Exposure controls/personal protection

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Praxair RGA Calibration Mix Cylinders					
carbon monoxide	DNEL	Long term Inhalation	23 mg/m³	Workers	Local
	DNEL	Long term Inhalation	23 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	35 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	117 mg/m³	Workers	Local
1,3-butadiene	DMEL	Long term Inhalation	0.2652 mg/m³	General population	Systemic
	DMEL	Long term Inhalation	2.21 mg/m³	Workers	Systemic
Universal Gas Mix					
carbon monoxide	DNEL	Long term Inhalation	23 mg/m³	Workers	Local
	DNEL	Long term Inhalation	23 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	35 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	117 mg/m³	Workers	Local

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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.

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.

SECTION 8: Exposure controls/personal protection

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 : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state :	Praxair RGA Calibration Mix Cylinders	Gas.
	Universal Gas Mix	Gas.
Colour :	Praxair RGA Calibration Mix Cylinders	Not available.
	Universal Gas Mix	Colourless.
Odour :	Praxair RGA Calibration Mix Cylinders	Not available.
	Universal Gas Mix	Odourless.
Odour threshold :	Praxair RGA Calibration Mix Cylinders	Not available.
	Universal Gas Mix	Not available.
Melting point/freezing point :	Praxair RGA Calibration Mix Cylinders	Not applicable.
	Universal Gas Mix	Not applicable.
Initial boiling point and boiling range :	Praxair RGA Calibration Mix Cylinders	Not available.
	Universal Gas Mix	Not available.
Flammability :	Praxair RGA Calibration Mix Cylinders	Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
	Universal Gas Mix	Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Upper/lower flammability or explosive limits :	Praxair RGA Calibration Mix Cylinders	Not available.
	Universal Gas Mix	Lower: 5% Upper: 15.4%
Flash point :	Praxair RGA Calibration Mix Cylinders	Not applicable.
	Universal Gas Mix	Closed cup: -188°C
Auto-ignition temperature :	Universal Gas Mix	540°C

Ingredient name	°C	Method
Praxair RGA Calibration Mix Cylinders		
Methane	287	-
Ethane	287	-

Decomposition temperature :	Praxair RGA Calibration Mix Cylinders	Not available.
	Universal Gas Mix	Not available.

SECTION 9: Physical and chemical properties

pH	:	Praxair RGA Calibration Mix Cylinders	Not applicable.
		Universal Gas Mix	Not applicable.
Viscosity	:	Praxair RGA Calibration Mix Cylinders	Not applicable.
		Universal Gas Mix	Not applicable.
Solubility(ies)	:	Not available.	
Partition coefficient: n-octanol/water	:	Praxair RGA Calibration Mix Cylinders	Not applicable.
		Universal Gas Mix	Not applicable.
Vapour pressure	:	Not available.	
Evaporation rate	:	Praxair RGA Calibration Mix Cylinders	Not available.
		Universal Gas Mix	Not available.
Relative density	:	Praxair RGA Calibration Mix Cylinders	Not applicable.
		Universal Gas Mix	Not applicable.
Vapour density	:	Praxair RGA Calibration Mix Cylinders	Not available.
		Universal Gas Mix	Not available.
Explosive properties	:	Praxair RGA Calibration Mix Cylinders	Not available.
		Universal Gas Mix	Not available.
Oxidising properties	:	Praxair RGA Calibration Mix Cylinders	Not available.
		Universal Gas Mix	Not available.
Particle characteristics			
Median particle size	:	Praxair RGA Calibration Mix Cylinders	Not applicable.
		Universal Gas Mix	Not applicable.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	Praxair RGA Calibration Mix Cylinders	No specific test data related to reactivity available for this product or its ingredients.
		Universal Gas Mix	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	Praxair RGA Calibration Mix Cylinders	The product is stable.
		Universal Gas Mix	The product is stable.
10.3 Possibility of hazardous reactions	:	Praxair RGA Calibration Mix Cylinders	Under normal conditions of storage and use, hazardous reactions will not occur.
		Universal Gas Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	Praxair RGA Calibration Mix Cylinders	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.
		Universal Gas Mix	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.

SECTION 10: Stability and reactivity

10.5 Incompatible materials

: Praxair RGA Calibration Mix Cylinders: May react or be incompatible with oxidising materials.

Universal Gas Mix: May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products

: Praxair RGA Calibration Mix Cylinders: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Universal Gas Mix: 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
Praxair RGA Calibration Mix Cylinders				
carbon monoxide	LC50 Inhalation Gas.	Rat	1900 mg/m³	4 hours
	LC50 Inhalation Gas.	Rat	1807 ppm	4 hours
1,3-butadiene	LC50 Inhalation Gas.	Rat	128000 ppm	4 hours
	LC50 Inhalation Vapour	Rat	285 g/m³	4 hours
	LD50 Oral	Rat	5480 mg/kg	-
Universal Gas Mix				
carbon monoxide	LC50 Inhalation Gas.	Rat	1900 mg/m³	4 hours
	LC50 Inhalation Gas.	Rat	1807 ppm	4 hours

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Praxair RGA Calibration Mix Cylinders					
Praxair RGA Calibration Mix Cylinders	N/A	N/A	180700.0	N/A	N/A
carbon monoxide	N/A	N/A	1807	N/A	N/A
1,3-butadiene	5480	N/A	128000	285	N/A
Universal Gas Mix					
Universal Gas Mix	N/A	N/A	1642727.3	N/A	N/A
carbon monoxide	N/A	N/A	1807	N/A	N/A

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
Praxair RGA Calibration Mix Cylinders			
ethylene	Category 3	-	Narcotic effects
Propyne	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Praxair RGA Calibration Mix Cylinders			
carbon monoxide	Category 1	-	-
Universal Gas Mix			
carbon monoxide	Category 1	-	-

Aspiration hazard

Not available.

Information on likely routes of exposure

: Praxair RGA Calibration Mix Cylinders: Routes of entry anticipated: Inhalation.

Universal Gas Mix: Routes of entry anticipated: Inhalation.

Potential acute health effects

Inhalation

: Praxair RGA Calibration Mix Cylinders: No known significant effects or critical hazards.

Universal Gas Mix: No known significant effects or critical hazards.

Ingestion

: Praxair RGA Calibration Mix Cylinders: As this product is a gas, refer to the inhalation section.

Universal Gas Mix: As this product is a gas, refer to the inhalation section.

Skin contact

: Praxair RGA Calibration Mix Cylinders: Contact with rapidly expanding gas may cause burns or frostbite.

Universal Gas Mix: Contact with rapidly expanding gas may cause burns or frostbite.

Eye contact

: Praxair RGA Calibration Mix Cylinders: Contact with rapidly expanding gas may cause burns or frostbite.

Universal Gas Mix: Contact with rapidly expanding gas may cause burns or frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation

: Praxair RGA Calibration Mix Cylinders: Adverse symptoms may include the following:

reduced foetal weight
increase in foetal deaths
skeletal malformations

Universal Gas Mix: No specific data.

Ingestion

: Praxair RGA Calibration Mix Cylinders: Adverse symptoms may include the following:

reduced foetal weight
increase in foetal deaths
skeletal malformations

Universal Gas Mix: No specific data.

Skin contact

: Praxair RGA Calibration Mix Cylinders: Adverse symptoms may include the following:

reduced foetal weight
increase in foetal deaths
skeletal malformations

Universal Gas Mix: No specific data.

Eye contact

: Praxair RGA Calibration Mix Cylinders: No specific data.

Universal Gas Mix: No specific data.

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

SECTION 11: Toxicological information

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

Conclusion/Summary : Not available.

General	:	Praxair RGA Calibration Mix Cylinders	May cause damage to organs through prolonged or repeated exposure.
		Universal Gas Mix	No known significant effects or critical hazards.
Carcinogenicity	:	Praxair RGA Calibration Mix Cylinders	May cause cancer. Risk of cancer depends on duration and level of exposure.
		Universal Gas Mix	No known significant effects or critical hazards.
Mutagenicity	:	Praxair RGA Calibration Mix Cylinders	May cause genetic defects.
		Universal Gas Mix	No known significant effects or critical hazards.
Reproductive toxicity	:	Praxair RGA Calibration Mix Cylinders	May damage the unborn child.
		Universal Gas Mix	No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Not available.

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	$LogP_{ow}$	BCF	Potential
Praxair RGA Calibration Mix Cylinders			
Carbon dioxide	0.83	-	Low
ethylene	1.13	-	Low
Propyne	0.94	-	Low
1,3-butadiene	1.99	-	Low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Mobility : Not available.

SECTION 12: Ecological information

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 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 : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. 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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number or ID 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

ADR/RID : **Hazard identification number** 23
Limited quantity 0
Special provisions 274, 662, 392
Tunnel code (B/D)

IMDG : **Emergency schedules** F-D, S-U
Special provisions 274, 392

SECTION 14: Transport information

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A1, A807

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 IMO instruments : 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.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Product / Ingredient name	Identifiers	Designation [Usage]
Praxair RGA Calibration Mix Cylinders		
Praxair RGA Calibration Mix Cylinders	-	28 29 30
carbon monoxide	EC: 211-128-3 CAS: 630-08-0 Index: 006-001-00-2	30
1,3-butadiene	EC: 203-450-8 CAS: 106-99-0 Index: 601-013-00-X	28 29

Label : Praxair RGA Calibration Mix Cylinders — Restricted to professional users.
Universal Gas Mix — Not applicable.

Other EU regulations

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

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

SECTION 15: Regulatory information

Category
Praxair RGA Calibration Mix Cylinders P2 **Universal Gas Mix** P2

National regulations

Product/ingredient name	List name	Name on list	Classification	Notes
Praxair RGA Calibration Mix Cylinders carbon monoxide	Ireland Occupational Exposure Limits	carbon monoxide	Repro. Repr.1A	-
Universal Gas Mix carbon monoxide	Ireland Occupational Exposure Limits	carbon monoxide	Repro. Repr.1A	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Canada : All components are listed or exempted.

China : Not determined.

Eurasian Economic Union : **Russian Federation inventory**: All components are listed or exempted.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): All components are listed or exempted.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand : All components are listed or exempted.

Turkey : Not determined.

United States : All components are active or exempted.

Viet Nam : 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]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

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

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

Full text of abbreviated H statements

Praxair RGA Calibration Mix Cylinders	
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	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.
Universal Gas Mix	
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H331	Toxic if inhaled.
H360D	May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

Full text of classifications [CLP/GHS]

Praxair RGA Calibration Mix Cylinders	
Acute Tox. 3	ACUTE TOXICITY - Category 3
Carc. 1A	CARCINOGENICITY - Category 1A
Flam. Gas 1A	FLAMMABLE GASES - Category 1A
Muta. 1B	GERM CELL MUTAGENICITY - Category 1B
Press. Gas (Comp.)	GASES UNDER PRESSURE - Compressed gas
Repr. 1A	REPRODUCTIVE TOXICITY - Category 1A
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

SECTION 16: Other information

Universal Gas Mix	
Acute Tox. 3	ACUTE TOXICITY - Category 3
Flam. Gas 1A	FLAMMABLE GASES - Category 1A
Press. Gas (Comp.)	GASES UNDER PRESSURE - Compressed gas
Repr. 1A	REPRODUCTIVE TOXICITY - Category 1A
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 1

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Version : 1

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