

SAFETY DATA SHEET

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

Section 1. Identification

Product identifier : 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

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

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
 679 Springvale Road
 Mulgrave
 Victoria 3170, Australia
 1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

Praxair RGA Calibration Mix Cylinders

H220 FLAMMABLE GASES - Category 1
 H280 GASES UNDER PRESSURE - Compressed gas
 H340 GERM CELL MUTAGENICITY - Category 1
 H350 CARCINOGENICITY - Category 1
 H360 REPRODUCTIVE TOXICITY - Category 1
 H373 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

Universal Gas Mix

H220 FLAMMABLE GASES - Category 1
 H280 GASES UNDER PRESSURE - Compressed gas
 Praxair RGA Calibration Mix Cylinders Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 33%
 Universal Gas Mix Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 99%

GHS label elements

Hazard pictograms

: Praxair RGA Calibration Mix Cylinders



Universal Gas Mix



Section 2. Hazard(s) identification

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. H360 - May damage fertility or 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.
	Universal Gas Mix	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely. 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 Universal Gas Mix	P403 - Store in a well-ventilated place. P403 - Store in a well-ventilated place.
Disposal	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable.
Supplemental label elements		
Additional warning phrases	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.
Other hazards which do not result in classification	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

Section 3. Composition and ingredient information

Substance/mixture	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Mixture Mixture
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CAS number/other identifiers

Section 3. Composition and ingredient information

Ingredient name	% (w/w)	CAS number
Praxair RGA Calibration Mix Cylinders		
Nitrogen	≥60 - ≤75	7727-37-9
Hydrogen	≥10 - ≤30	1333-74-0
Methane	≤10	74-82-8
Ethane	≤5	74-84-0
Carbon dioxide	≤5	124-38-9
Ethylene	≤3	74-85-1
Propane	≤3	74-98-6
Carbon monoxide	≤3	630-08-0
Acetylene	≤3	74-86-2
Propyne	≤3	74-99-7
Propylene	≤3	115-07-1
1,3-Butadiene	≤1	106-99-0
Butane	≤1	106-97-8
(Z)-But-2-ene	≤1	590-18-1
But-1-ene	≤1	106-98-9
Isobutane	≤1	75-28-5
2-Methylpropene	≤1	115-11-7
(E)-But-2-ene	≤1	624-64-6
Universal Gas Mix		
Methane	≥90	74-82-8

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

The total concentration of ingredients in this product, reported or not in this section, is 100%.

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

Section 4. First aid measures

Description of necessary 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.

Section 4. First aid measures

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.

Most important symptoms/effects, 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.

Section 4. First aid measures

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.
 <u>Indication of immediate medical attention and special treatment needed, if necessary</u>		
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.
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.

See toxicological information (Section 11)

Section 5. Firefighting measures

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.
Specific hazards arising from the chemical	: 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.

Section 5. Firefighting measures

Hazardous thermal decomposition 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
Special protective actions 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.
	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.
Hazchem code	: Praxair RGA Calibration Mix Cylinders	2SE
	Universal Gas Mix	2SE

Section 6. Accidental release measures

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

Section 6. Accidental release measures

		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".
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).
<u>Methods and material for containment and cleaning up</u>		
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.

Section 7. Handling and storage

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 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

Section 7. Handling and storage

Advice on general occupational hygiene

: Praxair RGA Calibration Mix Cylinders

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.

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.

Conditions for safe storage, including any incompatibilities

: 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.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Praxair RGA Calibration Mix Cylinders Nitrogen Hydrogen Methane Ethane Carbon dioxide Ethylene	ACGIH TLV (United States, 1/2022). Oxygen Depletion [Asphyxiant]. ACGIH TLV (United States, 1/2022). Oxygen Depletion [Asphyxiant]. Explosive potential. ACGIH TLV (United States, 1/2022). Oxygen Depletion [Asphyxiant]. Explosive potential. ACGIH TLV (United States, 1/2022). Oxygen Depletion [Asphyxiant]. Explosive potential. Safe Work Australia (Australia, 10/2022). STEL: 54000 mg/m ³ 15 minutes. STEL: 30000 ppm 15 minutes. TWA: 9000 mg/m ³ 8 hours. TWA: 5000 ppm 8 hours. ACGIH TLV (United States, 1/2022). TWA: 200 ppm 8 hours.

Section 8. Exposure controls and personal protection

Propane	ACGIH TLV (United States, 1/2022). Oxygen Depletion [Asphyxiant]. Explosive potential.
Carbon monoxide	Safe Work Australia (Australia, 10/2022). TWA: 34 mg/m ³ 8 hours. TWA: 30 ppm 8 hours.
Acetylene	ACGIH TLV (United States, 1/2022). Oxygen Depletion [Asphyxiant]. Explosive potential.
Propyne	Safe Work Australia (Australia, 10/2022). TWA: 1640 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours.
Propylene	ACGIH TLV (United States, 1/2022). TWA: 500 ppm 8 hours.
1,3-Butadiene	Safe Work Australia (Australia, 10/2022). TWA: 22 mg/m ³ 8 hours. TWA: 10 ppm 8 hours.
Butane	Safe Work Australia (Australia, 10/2022). TWA: 1900 mg/m ³ 8 hours. TWA: 800 ppm 8 hours.
(Z)-But-2-ene	ACGIH TLV (United States, 1/2022). [Butenes all isomers] TWA: 250 ppm 8 hours.
But-1-ene	ACGIH TLV (United States, 1/2022). [Butenes all isomers] TWA: 250 ppm 8 hours.
Isobutane	ACGIH TLV (United States, 1/2022). [Butane isomers] Explosive potential. STEL: 1000 ppm 15 minutes.
2-Methylpropene	ACGIH TLV (United States, 1/2022). TWA: 250 ppm 8 hours.
(E)-But-2-ene	ACGIH TLV (United States, 1/2022). [Butenes all isomers] TWA: 250 ppm 8 hours.
Universal Gas Mix Methane	ACGIH TLV (United States, 1/2022). Oxygen Depletion [Asphyxiant]. Explosive potential.

Biological exposure indices

No exposure indices known.

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.

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.

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 and 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.
- 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.

Section 9. Physical and chemical properties and safety characteristics

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

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.
pH	: Praxair RGA Calibration Mix Cylinders	Not applicable.
	Universal Gas Mix	Not applicable.
Melting point/freezing point	: Praxair RGA Calibration Mix Cylinders	Not applicable.
	Universal Gas Mix	Not applicable.
Boiling point, initial boiling point, and boiling range	: Praxair RGA Calibration Mix Cylinders	Not available.
	Universal Gas Mix	Not available.
Flash point	: Praxair RGA Calibration Mix Cylinders	Not applicable.
	Universal Gas Mix	Closed cup: -188°C (-306.4°F)


Section 9. Physical and chemical properties and safety characteristics

Evaporation rate	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Not available.																
Flammability	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.																
Lower and upper explosion limit/flammability limit	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Lower: 5% Upper: 15.4%																
Vapour pressure	: <input checked="" type="checkbox"/> Not available.																	
Relative vapour density	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Not available.																
Relative density	: <input checked="" type="checkbox"/> Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.																
Solubility(ies)	: <input checked="" type="checkbox"/> Not available.																	
Partition coefficient: n-octanol/water	: <input checked="" type="checkbox"/> Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.																
Auto-ignition temperature	: <input checked="" type="checkbox"/> Universal Gas Mix	540°C (1004°F)																
<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>°C</th> <th>°F</th> <th>Method</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Praxair RGA Calibration Mix Cylinders</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Methane</td> <td>287</td> <td>548.6</td> <td>-</td> </tr> <tr> <td>Ethane</td> <td>287</td> <td>548.6</td> <td>-</td> </tr> </tbody> </table>			Ingredient name	°C	°F	Method	<input checked="" type="checkbox"/> Praxair RGA Calibration Mix Cylinders				Methane	287	548.6	-	Ethane	287	548.6	-
Ingredient name	°C	°F	Method															
<input checked="" type="checkbox"/> Praxair RGA Calibration Mix Cylinders																		
Methane	287	548.6	-															
Ethane	287	548.6	-															
Decomposition temperature	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Not available.																
Viscosity	: <input checked="" type="checkbox"/> Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.																
Particle characteristics																		
Median particle size	: <input checked="" type="checkbox"/> Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.																

Section 10. Stability and reactivity

Reactivity	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	The product is stable. The product is stable.


Section 10. Stability and reactivity

Possibility of hazardous reactions	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:  Praxair RGA Calibration Mix Cylinders 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. 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.
Incompatible materials	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
Hazardous decomposition products	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

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/m ³	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/m ³	4 hours
	LD50 Oral	Rat	5480 mg/kg	-
Butane	LC50 Inhalation Vapour	Rat	658000 mg/m ³	4 hours
But-1-ene	LC50 Inhalation Gas.	Rat - Male, Female	23 mg/l	4 hours
Isobutane	LC50 Inhalation Vapour	Rat	658000 mg/m ³	4 hours
2-Methylpropene	LC50 Inhalation Vapour	Rat	550000 mg/m ³	4 hours

Irritation/Corrosion

Not available.

Sensitisation

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

Name	Category	Route of exposure	Target organs
Praxair RGA Calibration Mix Cylinders Ethylene Propyne	Category 3 Category 3	- -	Narcotic effects Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Praxair RGA Calibration Mix Cylinders 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

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.

Symptoms related to the physical, chemical and toxicological characteristics

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.

Section 11. Toxicological information

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

Numerical measures of toxicity

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	128297.0	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
Butane	N/A	N/A	N/A	658	N/A
Isobutane	N/A	N/A	276471	658	N/A
2-Methylpropene	N/A	N/A	N/A	550	N/A

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Praxair RGA Calibration Mix Cylinders			
Nitrogen	-	-	Readily
Methane	-	-	Readily
Ethane	-	-	Readily
Propane	-	-	Readily
Acetylene	-	-	Not readily
Butane	-	-	Readily
Isobutane	-	-	Readily

Section 12. Ecological information

Universal Gas Mix Methane	-	-	Readily
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Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Praxair RGA Calibration Mix Cylinders			
Nitrogen	0.67	-	Low
Methane	1.09	2	Low
Ethane	1.09	-	Low
Carbon dioxide	0.83	-	Low
Ethylene	1.13	-	Low
Propane	1.09	-	Low
Acetylene	0.37	-	Low
Propyne	0.94	-	Low
Propylene	1.77	-	Low
1,3-Butadiene	1.99	-	Low
Butane	2.89	-	Low
(Z)-But-2-ene	2.33	-	Low
But-1-ene	2.4	-	Low
Isobutane	2.8	-	Low
2-Methylpropene	2.34	-	Low
(E)-But-2-ene	2.31	-	Low
Universal Gas Mix			
Methane	1.09	2	Low

Mobility in soil

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

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




Section 13. Disposal considerations

Disposal methods : 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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

	ADG	IMDG	IATA
UN number	UN1954	UN1954	UN1954
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)

Section 14. Transport information

Transport hazard class(es)	2.1 	2.1 	2.1 
Packing group	-	-	-
Environmental hazards	No.	No.	No.

Additional information

- ADG** : **Hazchem code** 2SE
Special provisions 274
- IMDG** : **Emergency schedules** F-D, S-U
Special provisions 274, 392
- 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

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.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

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.
- New Zealand** : Not determined.
- United States** : All components are active or exempted.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 29/06/2023

Date of previous issue : 28/06/2020

Version : 7

Key to abbreviations

ADG = Australian Dangerous Goods
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available
 SUSMP = Standard Uniform Schedule of Medicine and Poisons
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
Praxair RGA Calibration Mix Cylinders FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas GERM CELL MUTAGENICITY - Category 1 CARCINOGENICITY - Category 1 REPRODUCTIVE TOXICITY - Category 1 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2	Calculation method On basis of test data Calculation method Calculation method Calculation method Calculation method
Universal Gas Mix FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas	On basis of test data On basis of test data

Indicates information that has changed from previously issued version.

Notice to reader

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