

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, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

Emergency telephone number (with hours of operation) : CHEMTREC®: 1-800-424-9300

Section 2. Hazard identification

Classification of the substance or mixture

Praxair RGA Calibration Mix Cylinders

H220 FLAMMABLE GASES - Category 1
H280 GASES UNDER PRESSURE - Compressed gas
SIMPLE ASPHYXIANTS - Category 1
H340 GERM CELL MUTAGENICITY - Category 1
H350 CARCINOGENICITY - Category 1
H360 TOXIC TO REPRODUCTION - Category 1
H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

Universal Gas Mix

H220 FLAMMABLE GASES - Category 1
H280 GASES UNDER PRESSURE - Compressed gas
SIMPLE ASPHYXIANTS - Category 1
H360 TOXIC TO REPRODUCTION - Category 1

GHS label elements

Hazard pictograms

: Praxair RGA Calibration Mix Cylinders



Universal Gas Mix



Signal word : Praxair RGA Calibration Mix Cylinders Danger
Universal Gas Mix Danger

Section 2. Hazard identification

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. H372 - Causes damage to organs through prolonged or repeated exposure.
	Universal Gas Mix	May displace oxygen and cause rapid suffocation. H220 - Extremely flammable gas. H280 - Contains gas under pressure; may explode if heated. H360 - May damage fertility or the unborn child. May displace oxygen and cause rapid suffocation.
 <u>Precautionary statements</u>		
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. P260 - Do not breathe gas. P270 - Do not eat, drink or smoke when using this product.
	Universal Gas Mix	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.
Response	: Praxair RGA Calibration Mix Cylinders	P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 - In case of leakage, eliminate all ignition sources. P308 + P313 - IF exposed or concerned: Get medical advice or attention.
	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. P308 + P313 - IF exposed or concerned: Get medical advice or attention.
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	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	: Praxair RGA Calibration Mix Cylinders	Keep container tightly closed. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.
	Universal Gas Mix	Keep container tightly closed. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.

Section 2. Hazard identification

	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%
Other hazards which do not result in classification	: Praxair RGA Calibration Mix Cylinders	None known.
	Universal Gas Mix	None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Praxair RGA Calibration Mix Cylinders	Mixture
	Universal Gas Mix	Mixture

Ingredient name	Synonyms	% (w/w)	CAS number
Praxair RGA Calibration Mix Cylinders			
Ethylene	Ethylene	≥1 - ≤5	74-85-1
Carbon monoxide	Carbon monoxide	≥1 - ≤5	630-08-0
Acetylene	Acetylene	≥1 - ≤5	74-86-2
Propyne	Methyl acetylene	≥1 - ≤5	74-99-7
1,3-Butadiene	1,3-Butadiene	≥0.1 - ≤1	106-99-0
Universal Gas Mix			
Carbon monoxide	Carbon monoxide	≥0.1 - ≤1	630-08-0

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

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.

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. 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	
Inhalation	: Praxair RGA Calibration Mix Cylinders	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

Section 4. First-aid measures

	Universal Gas Mix	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. 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.
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. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
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	At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
	Universal Gas Mix	At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
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

Section 4. First-aid measures

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 fetal weight increase in fetal deaths skeletal malformations
	Universal Gas Mix	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
Skin contact	: Praxair RGA Calibration Mix Cylinders	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	Universal Gas Mix	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
Ingestion	: Praxair RGA Calibration Mix Cylinders	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	Universal Gas Mix	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

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. 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.

Section 4. First-aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting 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.

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.

Section 5. Fire-fighting measures

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.

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 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	: Praxair RGA Calibration Mix Cylinders	If specialized 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 specialized 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).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

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 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. 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.

Section 8. Exposure controls/personal protection

<p>Propyne</p>	<p>6/2022). Oxygen Depletion [Asphyxiant]. Explosive potential.</p> <p>CA Quebec Provincial (Canada, 6/2022). Oxygen Depletion [Asphyxiant].</p> <p>CA Ontario Provincial (Canada, 6/2019). Oxygen Depletion [Asphyxiant]. Explosive potential.</p> <p>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 1640 mg/m³ 8 hours. 8 hrs OEL: 1000 ppm 8 hours.</p> <p>CA British Columbia Provincial (Canada, 6/2022). Explosive potential. TWA: 1000 ppm 8 hours.</p> <p>CA Ontario Provincial (Canada, 6/2019). Explosive potential. TWA: 1000 ppm 8 hours.</p> <p>CA Quebec Provincial (Canada, 6/2022). TWAEV: 1640 mg/m³ 8 hours. TWAEV: 1000 ppm 8 hours.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 1250 ppm 15 minutes. TWA: 1000 ppm 8 hours.</p>
<p>1,3-Butadiene</p>	<p>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 4.4 mg/m³ 8 hours. 8 hrs OEL: 2 ppm 8 hours.</p> <p>CA British Columbia Provincial (Canada, 6/2022). TWA: 2 ppm 8 hours.</p> <p>CA Ontario Provincial (Canada, 6/2019). TWA: 2 ppm 8 hours.</p> <p>CA Quebec Provincial (Canada, 6/2022). TWAEV: 2 ppm 8 hours. TWAEV: 4.4 mg/m³ 8 hours.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 4 ppm 15 minutes. TWA: 2 ppm 8 hours.</p>
<p>Universal Gas Mix Carbon monoxide</p>	<p>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 25 ppm 8 hours. 8 hrs OEL: 29 mg/m³ 8 hours.</p> <p>CA British Columbia Provincial (Canada, 6/2022). TWA: 25 ppm 8 hours. STEL: 100 ppm 15 minutes.</p> <p>CA Ontario Provincial (Canada, 6/2019). TWA: 25 ppm 8 hours.</p> <p>CA Quebec Provincial (Canada, 6/2022). TWAEV: 35 ppm 8 hours. STEV: 175 ppm 15 minutes.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 190 ppm 15 minutes.</p>

Section 8. Exposure controls/personal protection

TWA: 25 ppm 8 hours.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor 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.

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 Gas.
Cylinders
Universal Gas Mix Gas.

Section 9. Physical and chemical properties and safety characteristics

Color	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Colorless.
Odor	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Odorless.
Odor threshold	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Not available.
pH	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.
Melting point/freezing point	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.
Boiling point, initial boiling point, and boiling range	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Not available.
Flash point	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Closed cup: -188°C (-306.4°F)
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%
Vapor pressure	: Not available.	Not available.
Relative vapor density	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Not available.
Relative density	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.
Solubility(ies)	: Not available.	Not available.
Partition coefficient: n-octanol/water	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.
Auto-ignition temperature	: Universal Gas Mix	540°C (1004°F)

Ingredient name	°C	°F	Method
Praxair RGA Calibration Mix Cylinders			
Methane	287	548.6	-
Ethane	287	548.6	-

Section 9. Physical and chemical properties and safety characteristics

Decomposition temperature	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not available. Not available.
Viscosity	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	Not applicable. Not applicable.
Particle characteristics		
Median particle size	: 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.
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 pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas. Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.
Incompatible materials	: Praxair RGA Calibration Mix Cylinders Universal Gas Mix	May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing 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
1,3-Butadiene	LC50 Inhalation Gas.	Rat	1807 ppm	4 hours
	LC50 Inhalation Gas.	Rat	128000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	285 g/m ³	4 hours
	LD50 Oral	Rat	5480 mg/kg	-
Universal Gas Mix				
Carbon monoxide	LC50 Inhalation Gas.	Rat	1900 mg/m ³	4 hours
	LC50 Inhalation Gas.	Rat	1807 ppm	4 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	IARC	NTP	ACGIH
Praxair RGA Calibration Mix Cylinders			
Ethylene	3	-	A4
1,3-Butadiene	1	Known to be a human carcinogen.	A2

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Praxair RGA Calibration Mix Cylinders			
Ethylene	Category 3	-	Narcotic effects
Acetylene	Category 3	-	Narcotic effects
Propyne	Category 3	-	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	inhalation	heart
Universal Gas Mix			
Carbon monoxide	Category 1	inhalation	heart

Section 11. Toxicological information

Aspiration hazard

Not available.

Information on the 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 At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
 Universal Gas Mix At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

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 fetal weight
 increase in fetal deaths
 skeletal malformations
 Universal Gas Mix Adverse symptoms may include the following:
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

Skin contact : Praxair RGA Calibration Mix Cylinders Adverse symptoms may include the following:
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations
 Universal Gas Mix Adverse symptoms may include the following:
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

Ingestion : Praxair RGA Calibration Mix Cylinders Adverse symptoms may include the following:
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations
 Universal Gas Mix Adverse symptoms may include the following:
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

Section 11. Toxicological information

Delayed and immediate effects and also 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	Causes 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. May damage fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (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
Universal Gas Mix					
Carbon monoxide	N/A	N/A	1807	N/A	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			
Acetylene	-	-	Not readily

Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Praxair RGA Calibration Mix Cylinders			
Ethylene	1.13	-	Low
Acetylene	0.37	-	Low
Propyne	0.94	-	Low
1,3-Butadiene	1.99	-	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 minimized 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

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

Proof of classification statement : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).

Additional information

Section 14. Transport information

- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Vessel Index Forbidden
Passenger Carrying Road or Rail Index Forbidden
Special provisions 16
- 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

Canadian lists

- Canadian NPRI** : The following components are listed: ethylene; propane
CEPA Toxic substances : The following components are listed: methane; carbon dioxide

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

- Canada** : All components are listed or exempted.
United States : All components are active or exempted.

Section 16. Other information

History

- Date of issue/Date of revision** : 06/29/2023
Date of previous issue : 06/28/2020
Version : 7

Section 16. Other information

Key to abbreviations

- : ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- HPR = Hazardous Products Regulations
- 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
- 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 SIMPLE ASPHYXIANTS - Category 1 GERM CELL MUTAGENICITY - Category 1 CARCINOGENICITY - Category 1 TOXIC TO REPRODUCTION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	Calculation method On basis of test data Expert judgment Calculation method Calculation method Calculation method Calculation method
Universal Gas Mix FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Compressed gas SIMPLE ASPHYXIANTS - Category 1 TOXIC TO REPRODUCTION - Category 1	On basis of test data On basis of test data Expert judgment Calculation method

 Indicates information that has changed from previously issued version.

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