

Stable Isotope Ratio Gases

for Picarro CRDS

Rely on an expert partner for your isotope ratio measurements

Picarro's products are based on patented Cavity Ring-down Spectroscopy (CRDS) technology which provides concentration and/or isotopic ratio measurements. CRDS uses principles of optical spectroscopy to measure the concentration and isotopes of molecules in the gas phase.

CRDS enables precise and accurate detection of isotope ratios in a wide variety of applications for carbon, water and nitrogen cycle measurements.

Air Liquide's ALPHAGAZ™ product portfolio offers stable isotopically characterized gases in standard ranges with high analytical accuracy and targeted isotopic signatures to ensure accurate analysis and validation of CRDS instruments.

Key Benefits

- Increase the analytical accuracy of your isotopic ratios, required compositions and targeted isotopic signatures for various gases
- Improve analyzer calibration efficiency
- Adjust isotopic composition for each of your products
- Get standard products from your nearest Air Liquide affiliate
- Ready to ship & quick delivery



Rely on an expert partner for your isotope ratio measurements

Non-refillable cylinders:

- Gas volume: 34 liters
- Pressure: 34 bar (500 psig)
- Water volume: 1 liter
- C10-5/8"-18 UNF standard
- Weight: 0,4 kg (0.8 lbs)

Other cylinder sizes and packages are available upon request.



ALPHAGAZ™ Stable Isotope Ratio Gases

A product range dedicated to stable isotopic analysis

Air Liquide ALPHAGAZ™ Isotope Mixed Gases, Single component

Methane - CH₄

(Balance: Air)

δ ¹³ C (‰ vs VPDB)	CH ₄ : 2 (mol) ppm		
	-69 ± 1	-45 ± 1	-25 ± 0,5
	CH ₄ : 10 (mol) ppm		
	-69 ± 1	-45 ± 1	-25 ± 0,5
	CH ₄ : 30 (mol) ppm		
	-69 ± 1	-45 ± 1	-25 ± 0,5
	CH ₄ : 500 (mol) ppm		
-69 ± 1	-45 ± 1	-25 ± 0,5	
CH ₄ : 100 (mol) ppm			
-69 ± 1	-45 ± 1	-25 ± 0,5	

Carbon Dioxide - CO₂

(Balance: Air)

δ ¹³ C (‰ vs VPDB)	CO ₂ : 300 (mol) ppm		
	-40 ± 0,3	-25 ± 0,3	-5 ± 0,3
	CO ₂ : 1500 (mol) ppm		
	-40 ± 0,3	-25 ± 0,3	-5 ± 0,3

Nitrous Oxide - N₂O

(Balance: Air*)

δ ¹⁵ N (‰ vs atm N ₂)	N ₂ O: 300 (mol) ppb	
	-0,3 ± 0,5	+2,2 ± 0,5
	N ₂ O: 1500 (mol) ppb	
	-0,3 ± 0,5	+2,2 ± 0,5

*Air is defined as 20,9%mol/ O₂ balanced in N₂

**The ¹⁵N signature reported here is the bulk ¹⁵N

*** For N₂O the ¹⁵N alpha and beta values and ¹⁸O permil VSMOW are reported

Air Liquide ALPHAGAZ™ Isotope Mix Gases, Three component versus two-component

Methane - CH₄ & Carbon Dioxide - CO₂

(Balance: Air)

Category	CH ₄ (mol ppm)	δ ¹³ C (‰ vs VPDB)	CO ₂ (mol ppm)	δ ¹³ C (‰ vs VPDB)
Low	1	-25 ± 0.5	250	-5 ± 0.3
Medium	2	-45 ± 0.5	350	-10 ± 0.3
Natural	1.8	-47 ± 0.5	400	-8.6 ± 0.3
High	10	-69 ± 0.5	1000	-20 ± 0.3
High-High	1000	-25 ± 0.5	1000	-30 ± 0.3
Depleted	100	-55 ± 0.5	2500	-50 ± 0.3

Compact & Economical flow regulator:

- Model 27B: Single-stage nickel-plated
- Preset pressure and flowrate
- Regulator outlet: 3/16" hose barb
- On and off valve
- Weight: 0,5 kg (1 lbs)

Flowrate to be defined.



Low internal volume regulator:

- Model: 206BB, single-stage, brass regulator
- Compact and light weight
- Low internal dead volumes minimizes purging time
- Delivery pressure range: 0,1 - 5 bar
- Regulator outlet: 1/4" NPT(F)
- Weight: 0,6 kg (1.3 lbs)

Other type of pressure regulators are available upon request.



- ✓ Strong expertise
- ✓ Easy to reach
- ✓ Reliable service

Air Liquide Expertise Center

High purity gases, mixtures and related equipment for Research & Analysis

<http://airliquide-expertisecenter.com>

