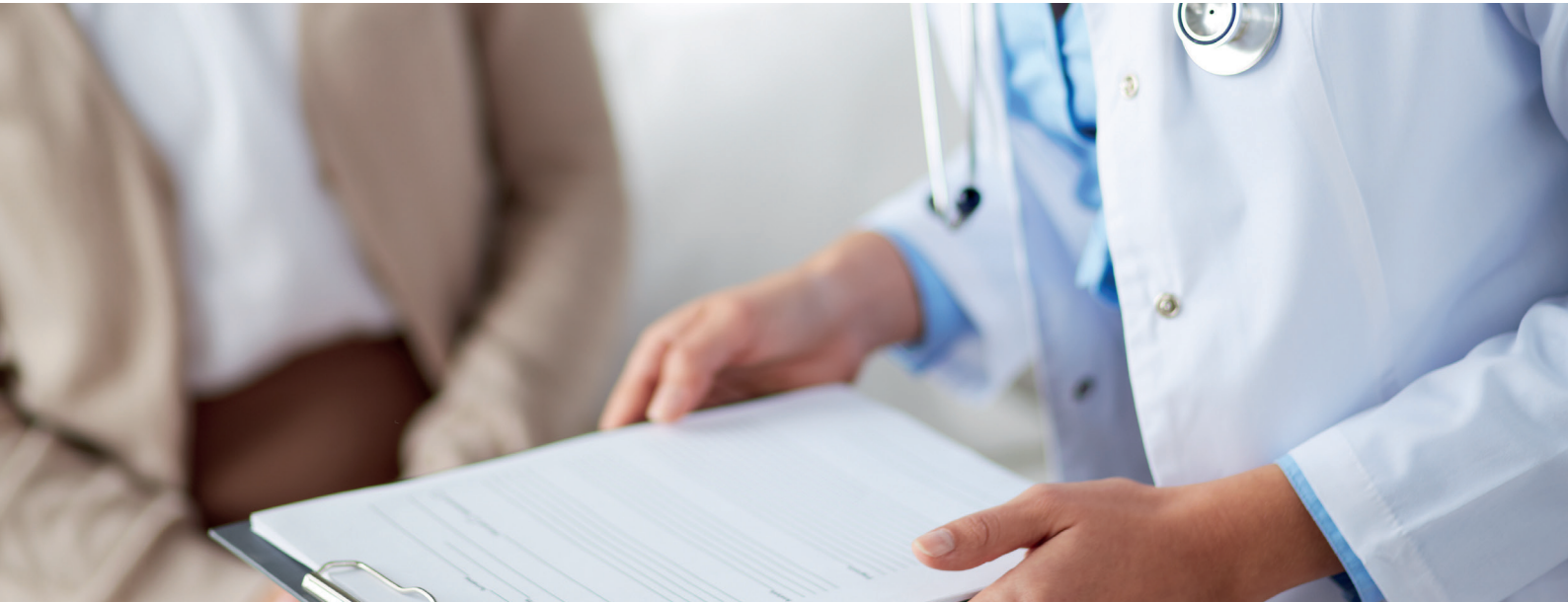


Stable Isotopes for Medical Diagnostics



Key Benefits

- High analytical accuracy of the isotopic ratios, required composition and targeted isotopic signatures for various mixtures
- Increased analyzer calibration efficiency
- Isotopic composition adjusted for each of your products

Rely on an expert partner for your isotope ratio measurements

Historically, blood tests and other invasive methods of testing have been utilized for diagnosing gastric diseases. Today, breath testing is a growing application for fast, accurate and noninvasive testing of various diseases.

The urea breath test is a quick diagnostic procedure used to identify infections by *Helicobacter pylori* (*H.pylori*), a spiral bacterium implicated in gastritis, gastric ulcers, and peptic ulcer disease. It is recommended by medical practices guidelines as the preferred noninvasive method for detecting *H. pylori* before and after treatment.

Other analyses based on Stable Isotope ratio of key molecules are being researched for non-invasive disease diagnosis and monitoring. Air Liquide welcomes the opportunity to support such efforts by providing specific isotopically engineered gases.

Whether you are a clinical laboratory, testing laboratory or an OEM, Air Liquide provides a range of mixtures for equipment qualification, in order to obtain more accurate diagnostics.

Air Liquide provides a complete standardized offer for stable isotopic analysis worldwide.

A product range dedicated to stable isotopic analysis

Air Liquide's offer provides a high purity level and very precise specification of the isotopic ratio of the molecules to ensure accurate analysis and calibration.



Part of the **ALPHAGAZ™** product range, Air Liquide's premium brand of specialty gases for analytical applications, the Isotopes product range for Medical Diagnostics consists of gas mixtures for calibration of breath testing equipment:

- **ALPHAGAZ™ Mix Isotope:** a range of calibration mixtures with different gas and isotopic compositions.

Two mixtures of CO₂ in N₂:

- Base Mixture: 3% CO₂, balance N₂
Isotopic Ratio: 13C/12C VPDB: $\delta^{13}\text{C} = -28\text{‰}$ to -45‰
- Post Mixture: 3% CO₂, balance N₂
Isotopic Ratio: 13C/12C – relative to Base Cylinder, final delta over baseline ranges from by $\Delta 8\text{‰}$ to $\Delta 50\text{‰} = \text{Final delta}$

All **ALPHAGAZ™** products are made to guarantee high accuracy and repeatability of analysis.

Custom products with specific molecular (from ppm to %) and isotopic composition can be designed upon request.

Simpler choices

- A straightforward range to meet the most common needs of our customers.
- A selected range of gas handling equipment to ensure high accuracy in use.

Quality you can depend on

- Dedicated expertise to offer accuracy and traceability.
- Delivered with Certificate of Conformity or a Certificate of Analysis.

Reliable service

- Guaranteed reliable lead time to meet your requirements.
- Ready-to-ship standard products.
- Custom products with specific molecular and isotopic compositions can be designed upon request to satisfy your unique requirements.
- Experts and front office teams to support you from feasibility and quotation, to delivery at your facility.
- Commitment to move the industry forward, by bringing innovations into the labs and implementing new industry standards.

ALPHAGAZ™ Mix Isotope

ALPHAGAZ™ Mix Isotope	Concentration (v/v)	Element	Delta Value	Balance Gas
CO ₂ in N ₂	3 %	δ ¹³ C (‰ VPDB)	-28 to -45	Nitrogen
CO ₂ in N ₂	3 %	δ ¹³ C (‰ VPDB)	Δ +8 to +50	Nitrogen
Other on-demand gas mixtures available upon request				

Convenient Packaging

Non refillable cylinders:

- Gas volume: 34 Liters (1.2CF)
- Water volume: 1 Liter
- Pressure: 500 psig (34bar)
- Weight: 0.4kg (0.8 lbs.)

Other cylinder sizes and packages are available upon request.

A la carte services

- Local customer service with on-site cylinder management
- Express delivery
- Gas safety training
- Proficiency Testing scheme

Check the availability of these services with your local sales representative.

Your local Stable Isotopes contact

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The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 65,000 employees and serves more than 3 million customers and patients.