

Experis®

Gas and Equipment for the Environment

<http://www.airproducts.com/Experis>

“Air is one of the most important natural resources on which all life depends. The atmosphere is also in the front line for receiving environmental pollution created by human activities.”

➤ **Measuring emissions and pollution**



STABILITY

PURITY

CALIBRATION MIXTURE ACCURACY

PEACE OF MIND

Environmental legislation is becoming increasingly stringent, demanding ever more accurate and reliable analysis of a wide range of complex chemical compounds.

This inevitably places individuals and analytical techniques under constantly growing pressure. That's why we developed the Experis® range of ultra-pure gases and gas mixtures.

We don't claim to be able to solve all your problems but we know that the reliability of our products means we can guarantee you **peace of mind** so you are free to concentrate on your business.

photochemical pollution

greenhouse effect
acid rain

ozone layer depletion

C O N F I D E N C E , A C C U R A C Y , P E A C E O F M I N D : S T A B L E , A C C U R A T E , P U R

The Experis® range sets the standard for analytical gases and gas mixtures, guaranteeing you the highest levels of:

• **Stability**

- + Unique mixture stabilisation technologies
- + Reliable calibration parameters throughout the entire lifecycle of a cylinder
- + An extensive range of mixture components

heavy metal

greenhouse effect

NO_x

• **Purity**

- + Patented BIP® technology
- + 100% consistency
- + Improved performance and lifetime of your instrumentation

acid rain
photochemical pollution

• **Calibration Mixture accuracy**

- + ISO17025 accredited products
- + Internationally recognised technical expertise
- + Certified to High Accuracy

SO₂



We understand the critical importance of accurate analyses and we are confident our range of Experis® gases will meet your most stringent requirements.

Guaranteed stable mixture

High Accuracy Mixtures...

Low concentration mixtures of reactive gases may show changes in concentration both over time and as the cylinder pressure falls. Since their stability is essential to the reliability of analytical results, we put our cylinders through special treatments and use proprietary technology to produce the Experis® range of gas mixtures.

> These mixtures are ultra-stable, even in the ppb range. Results have been verified and confirmed by independent National Laboratories.

“For ppb calibrations, a massive research programme enabled us to identify combinations of cylinder treatments, types of packaging and filling processes achieving the required results and providing peace of mind.”

Mark Sistern. Lead Development Scientist,
Air Products Packaged Gases Centre of Excellence.



aromatics

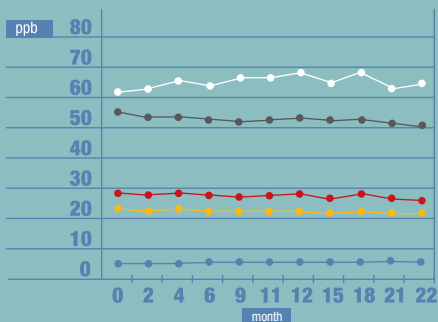
alcohol

HCl

isoprene

mercaptans

VOC gas standard stability analysis,
NPL (UK); Air Products treated Cylinder



● Ethyne (#2)
● Benzene (#6)
● Methylbenzene (#7)
● 1,3 Dimethyl benzene (#8)
● 1,3,5-Trimethyl benzene (#9)

Guaranteed accuracy and traceability ...

Our complete range of Experis® mixtures, satisfying international standards such as EPA or ISO 17025, is also able to meet the most stringent demands for accuracy, intercomparability or legal requirements.

Furthermore we guarantee the traceability of all our reference mixtures including all filling data. This comprehensive production data is a vital element in our approach to quality and includes the batch or cylinder number, the actual mass of the components and chromatographic data, to give just a few examples.

> Technical expertise and reliability guaranteeing accuracy, traceability and peace of mind, backed up by the internationally recognised ISO17025 accreditation procedures.

...even for novel compounds

We also develop filling techniques and analytical methods to satisfy new directives on pollution monitoring. When it comes to measuring volatile, sulphurous or corrosive organic compounds or indeed other products generated by industrial processes, the Experis® range is the perfect solution.

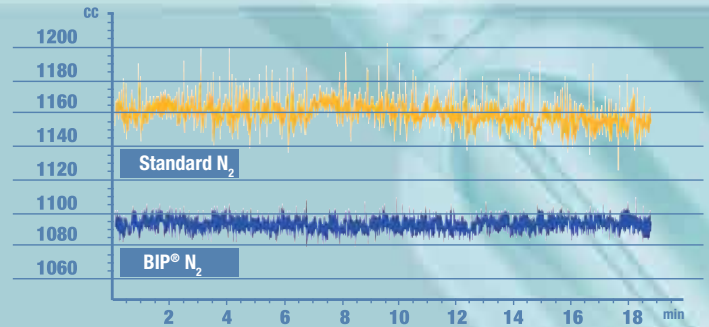


▶ The purest gases

To create the purest gas possible, we designed and patented a cylinder which contains an inbuilt purifier, otherwise known as BIP® technology from Air Products. It produces nitrogen, helium or argon that is 300 times purer than with conventional cylinders.

> Greater sensitivity and resolution, greater lifetime for columns and detectors and minimal maintenance.

FID baseline, Virginia Tech University (USA);
N₂ BIP® and non-BIP® N₂



▶ *“Since it contains less than 10 ppb of oxygen and 20 ppb of water, every BIP® cylinder gives users the benefit of an improved baseline, better peak separation and greater sensitivity.”*

Pr. John Irven Director R&D, Air Products Packaged Gases Group



▶ Air Products technologies for Experis® gases

▶ Gas Handling Equipment

The pollutants detected in the atmosphere are often toxic or reactive at low concentrations. To guarantee total reliability and purity of your gases, we have developed a complete range of equipment specifically designed for use with Experis® gases.

▶ *“Our equipment is subjected to the most rigorous engineering and assembly standards. Before delivery, we carry out the strictest quality control measures, including several leak tests. Each item of equipment is issued with a quality certificate.”*

Stéphane Bouchat, Air Products
Equipment Manager.



	Purity	Stability	Accuracy	Peace of mind
BIP®	The Ultimate Zero Gas	Consistency	Better analytical results	No rogue cylinders
Cylinder treatment	Minimal Impurities	No drift	Less uncertainty	Certain and reliable results
ISO 17025	Reliable and traceable standards			
Correct Gas Handling Equipment	Purity of the gas is maintained	No absorption, adsorption, desorption or catalysis		Guaranteed quality at equipment output point

Experis® gases *for Pollution Monitoring*

Experis® gases consist of **stable** and **accurate** calibration mixtures and **pure** and **ultra-pure** operating gases.

This combined with a corresponding range of Ultra High Purity Gas Handling equipment allows you to meet all current legislation, reliably. Not only will you experience trouble free operation and reliable results, you are also guaranteed **peace of mind.**

Experis® products	Examples...
Zero gases	Air, N ₂
Operating gases	He, N ₂ , Ar, Air, N ₂ O, mixtures
Calibration mixtures	%/ppm/ppb SO ₂ , NOx, COVs, CO, acidic gases, NH ₃
Gas Handling equipment	Pressure regulators, installations, high-purity pipe systems, engineering



Don't just take our word for it...

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"It is quite safe to say that these cylinders are stable."
 Agnès Borbon, Mines de Douais, France
- 
"Our conclusion is that, over two years, no significant reduction has been observed in the uncertainty range for the 27 hydrocarbons of the mixture. A very satisfactory result."
 Robert Partridge, NPL, United Kingdom
- 
"With BIP® cylinders from Air Products, you are guaranteed peace of mind in terms of gas purity."
 Tony Rycroft, Analytical and Environmental Services Ltd, United Kingdom
- 
"...BIP® nitrogen used as an added gas for ECD has improved the stability of the baseline, reduced noise and increased the response of the detector by 30%."
 Dr. Frank David, R&D Manager, Research Institute for Chromatography (R.I.C.), Belgium
- 
"Just in terms of the columns alone, the economies are significant ... but when you add on the time-savings, the economies are even greater."
 Andrea Dawson, Trace Organics Analyst, Analytical and Environmental Services Ltd, United Kingdom.

STABILITY

PURITY

PRECISION

PEACE OF MIND



Air Products serves customers in technology, energy, healthcare and industrial markets worldwide with a unique portfolio of products, services and solutions, providing atmospheric gases, process and specialty gases, performance materials and chemical intermediates. The company is the largest global supplier of electronic materials, hydrogen, helium and select performance chemicals.

Founded in 1940, Air Products is recognized for its innovative culture, operational excellence and commitment to safety and the environment. With annual revenues approaching \$10 billion and operations in over 50 countries, the company's over 20,000 employees build lasting relationships with their customers and communities based on understanding, integrity and passion.

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