

Experis[®] speciality gases for air emissions monitoring and ambient air quality



Key applications

- Continuous emissions monitoring
- All stages of testing defined in EN 14181
- QAL1, QAL2, and QAL3
- Annual Surveillance Testing (AST)
- Vapour and solvent emission control
- Ambient air quality measurement

Air Products has been a leading gas supplier to the air emissions monitoring market for decades, trusted for exceeding customer needs and recognised for its' innovative approach. It offers a range of market-leading products and solutions, including the Experis[®] speciality gases range.

Staying current in a changing market

Air Products is an active member of key European industry associations, including the Source Testing Association (STA), a community of regulators, plant operators, test houses and equipment suppliers which come together to develop robust solutions to issues relating to industrial emissions monitoring. Contributing to this forum, and others across Europe, ensures we stay up to date with the stringent demands of the market.

Calibration Gases

Calibration of a continuous emissions monitoring system (CEMs) necessitates traceable and accurately certified gas mixtures. The Experis[®] specialty gases range of calibration gases fulfils this requirement and delivers further unique benefits, including:

- Unrivalled stability achieved using Experis cylinder treatments endorsed by some of the world's leading metrology institutes.
- Low expanded uncertainties which are individually calculated per mixture component.



Our calibration gases are available in a wide range of cylinder sizes from 2 litre to 50 litre water capacity, meaning our customers can always achieve the ideal compromise between gas capacity and portability where needed. They represent an ideal solution for QAL3 testing.

Three advanced speciality gases facilities located in UK, Belgium, and Spain, mean our comprehensive product and service offering is among the fastest and most reliable in Europe.

Instrument Gases

Ultra-high purity gases have an important role to play in all aspects of air emissions measurement. The Experis® range includes instrument and zero gases in both 10 litre and 47 litre cylinders with unrivalled specifications, helping analysts to minimise their measurement uncertainties wherever they need to operate.

Certificates of conformity are available on request for all instrument and zero gases, for quality control and audit purposes.

Instrument zero gases – Nitrogen

Impurity	Nitrogen Premier 99.9992%	Nitrogen BIP® 99.9999%	Nitrogen BIP® Plus 99.99997%
H ₂ O	< 2 ppm	< 0.02 ppm	< 0.02 ppm
THC as CH ₄	< 0.5 ppm	< 0.1 ppm	< 0.05 ppm
CO+CO ₂	-	< 0.5 ppm	< 0.05 ppm
O ₂	< 3	< 0.01 ppm	< 0.01 ppm
H ₂	-	< 0.2 ppm	< 0.05 ppm
NO _x	-	< 0.1 ppm	< 0.02 ppm
Product Code			
10 litre cylinder, 200 Bar	491266	53960	x
47 litre cylinder, 200 Bar	26052	25883	25884

Instrument zero gases – Synthetic Air

Impurity	Synthetic Air Zero 99.9999%	Synthetic Air Zero Plus 99.9999%
H ₂ O	< 3 ppm	< 0.5 ppm
THC as CH ₄	< 0.2 ppm	< 0.05 ppm
CO+CO ₂	< 1 ppm	< 0.1 ppm
SO ₂	-	< 0.02 ppm
Product Code		
10 litre cylinder, 200 Bar	21632	21634
47 litre cylinder, 200 Bar	21629	21633

FID fuel gases

Impurity	FID Fuel 40% Hydrogen / Helium	Experis® FID Fuel 40% Hydrogen / Helium	Hydrogen Premier Plus 99.9992%	Hydrogen BIP® 99.9999%
THC as CH ₄	< 1 ppm	< 0.1 ppm	< 0.1 ppm	< 0.01 ppm
CO+CO ₂	-	< 0.5 ppm	< 0.5 ppm	< 0.1 ppm
Product Code				
10 litre cylinder, 200 Bar	x	20818	26048	480733
47 litre cylinder, 200 Bar	463112	20326	26046	138390



Air Products' ISO 17025 accreditation scope for air emissions monitoring

Our comprehensive ISO 17025 accreditation scope is optimised to serve users in the environmental monitoring sector where the very highest levels of accuracy and traceability are called for. Calibration mixtures certified within this scope are a critical part of QAL1, QAL2, and AST compliance. Air Products has led the way in this field, and is one of the few gas companies to offer calibration gas mixtures containing NO, SO₂, CO and CO₂ in the same cylinder (multi-component), and are certified by an ISO 17025 accredited calibration laboratory. This provides users with a number of key technical, safety, and cost benefits when compared to the more commonly available binary gas mixtures.

Technical benefits

Calibration using traditional binary mixtures can lead to errors in the analysis of stack gases due to cross-sensitivity effects, hence the value of these products in all aspects of EN 14181 compliance. Calibration using binary mixtures often does not take into account cross sensitivity effects. These same errors can also prove expensive during emissions trading processes.

Improved safety and storage

When working with gas mixtures, the manual handling of cylinders represents one of the major health and safety concerns. Air Products multi-component mixtures means users can potentially reduce the cylinder inventory by as much as 75%. This reduction facilitates a smaller gas control equipment stockholding, and therefore less equipment maintenance. Additional benefits are less set up time on site.

Cost savings

Multi-component mixtures do not need to cost more than the combined costs of individual binary mixtures. And, by reducing the need for cylinder rental charges and transaction fees, they can provide significant cost savings.



Multi-component mixtures

(any combination of components shown in same table)

Component	Concentration range	Uncertainty
CO	20 ppm - 5000 ppm	2.5 - 0.75%
CO ₂	300 ppm - 20%	1.5 - 0.75%
NO	10 ppm - 5000 ppm	2.5 - 2%
SO ₂	10 ppm - 5000 ppm	2.5 - 0.9%
N ₂	Balance	

Component	Concentration range	Uncertainty
CO	20 ppm - 10%	2 - 0.75%
CO ₂	300 ppm - 20%	1.5 - 0.75%
O ₂	1000 ppm - 28%	1.5 - 0.5%
N ₂	Balance	

Component	Concentration range	Uncertainty
CO	900 ppm - 10%	0.75%
CO ₂	300 ppm - 20%	1.5 - 0.75%
C ₃ H ₈	1 ppm - 3500 ppm	1.3 - 0.9%
O ₂	1000 ppm - 28%	1.5 - 0.5%
N ₂	Balance	

Binary mixtures

Component	Balance	Concentration range	Uncertainty
CH ₄	N ₂ or Air	10 ppm - 2.5%	2 - 1%
CO	N ₂ or Air	10 ppm - 10%	1.5 - 0.75%
CO ₂	N ₂ or Air	300 ppm - 20%	1.5 - 0.75%
C ₃ H ₈	N ₂ or Air	1 ppm - 3500 ppm	1.3 - 0.9%
NO	N ₂	10 ppm - 5000 ppm	1.3 - 1%
NO ₂	N ₂ or Air	10 ppm - 400 ppm	4 - 3%
O ₂	N ₂	1000 ppm - 28%	1.5 - 0.5%
SO ₂	N ₂	10 ppm - 5000 ppm	1.5 - 0.9%

A regularly updated and detailed scope of our accreditation can be found on the ENAC website: www.enac.es

myAirProductsSM

Air Products customers can now manage their gas cylinder inventory via the on-line service myAirProductsSM, which provides visibility of all cylinder gases on-site, as well providing access to certificates of analysis and safety data sheets.

Once registered, users have found that secure, on-line access from any internet enabled device is an ideal resource for managing cylinder inventories across single and multiple sites.



Gas control equipment and gas installation services

Air Products supply a wide range of high specification gas control equipment intended for use with Experis calibration gas mixtures and ultra-high purity gases. For more complex needs we offer site surveys that allow us to advise customers on

- Gas control equipment selection
- Gas distribution and pipework to the point of use
- Safe storage and segregation of gases
- Compliance with legislation and industry standards

Following a site survey, we can offer a comprehensive quotation for supply and installation of the equipment we recommend. After installation, we offer training on its correct usage, and all the documentation you would expect including operation and maintenance manuals, drawings, and product certification.

Air Products can also provide advice on gas detection equipment as part of a turnkey project.

Please contact us to discuss your specific site needs.

“Stability of gas mixtures is important for us, since some gas calibration mixtures we use are low turnover and contain reactive components like NO. Since every Experis® Gas mixture cylinder has its own unique surface treatment, we can be sure that the content stays as it should be.”

Ángel Moratilla I Abad
Technical manager,
Ambiental De Verificaciones
S. L. Spain

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