

# Experis® Ultra High Purity gases



- Purity
- Accuracy
- Stability
- Peace of Mind

## Experis® gases

Whatever your application, be it chemical analysis or process control, our Experis® gas UHP range offers you the optimum gas solution. Acetylene, Air, Argon, Carbon Dioxide, Helium, Hydrogen, Nitrogen, and Oxygen are available with a range of purity levels. They can be supplied in a cylinder size to suit your specific requirements, from small 2 litre cylinders to packs of 18 large cylinders.

## Guaranteed purity

It is not just the ultra high purity of the gas that offers peace of mind, but also the certainty of knowing the maximum level of specific impurities contained in the gas. Understanding which impurities, and at what level, interfere with your specific analysis, enables us to provide you with a range of gases and grades which enable you to achieve the most accurate results. Our Experis® gases specialists can assist you in selecting the optimum gas for your application. All Experis® UHP gases come with stated maximum impurity levels and, of course, our quality assurance systems are ISO 9001 certified. The Experis® Pharma grade gases are produced to comply fully with the European Pharmacopoeia and Good Manufacturing Practice part II, ensuring peace of mind for producers of APIs and pharmaceuticals.

## BIP® technology in operation

Before the gas exits the BIP® cylinders, it is cleaned of critical impurities using a unique filtering method. The result is an ultra-pure gas, perfect for even the most demanding of applications. Every BIP® Nitrogen, Helium and Argon cylinder contains less than 10ppb of oxygen and less than 20ppb of water, making them 300 times purer than conventional UHP gases. Now the BIP® technology has been extended to Hydrogen with less than 100ppb of oxygen, less than 20ppb of water and less than 10ppb of THC. BIP® technology gives you the ultimate zero gas; this means longer chromatographic column life, ultra low dew points and zero process contamination.



## Gas equipment

The use of specially designed and engineered gas control equipment ensures that gas reaches the point of use not only at the required purity, but also at the required pressure and flow rate. At Air Products, we use our expertise in UHP gases and their applications to offer you a comprehensive range of gas control equipment, including regulators and manifolds. All equipment is designed to the highest standards and is extensively leak-tested. We also offer an extensive design, build and install service giving you complete peace of mind whatever your application.

- For analytical and high technology applications
- Contain ultra low levels of impurities
- When combined with BIP® technology you are guaranteed unrivalled purity
- Accurate analyses are ensured, giving you greater peace of mind

# Ultra High Purity Gases: standard specifications

Other sizes, purities or analyses available on request. Please contact Air Products

Grade	Specifications (in ppm molar when not specified)							Purity	Cylinders*				Packs*		Analytical Verification
	PH <sub>3</sub>	H <sub>2</sub> S	THC <sup>1</sup>	CO+CO <sub>2</sub>	N <sub>2</sub>	NO <sub>x</sub> /NH <sub>3</sub> /SO <sub>2</sub> /H <sub>2</sub> S	CFC <sup>2</sup>		200 bar	300 bar	200 bar	300 bar			
<b>Acetylene</b>	PH <sub>3</sub>	H <sub>2</sub> S							30	51					C <sub>2</sub> H <sub>2</sub>
Premier	10	10	-	-	-	-	-	2.6	-	-	✓	✓	-	-	Batch
<b>Synthetic Air</b>	H <sub>2</sub> O		THC <sup>1</sup>	CO+CO <sub>2</sub>		NO <sub>x</sub> /NH <sub>3</sub> /SO <sub>2</sub> /H <sub>2</sub> S			10	47	11x47				Air
Zero (20.9% O <sub>2</sub> +/-1%)	3	-	0.2	1	-	-	-	5.0	-	-	✓	✓	✓	-	Batch
Zero Plus (20.9% O <sub>2</sub> +/-0.2%)	0.5	-	0.05	0.1	-	ND <sup>3</sup>	-	6.0	-	-	✓	✓	✓	-	Individual
<b>Argon</b>	H <sub>2</sub> O	O <sub>2</sub>	THC <sup>1</sup>	CO+CO <sub>2</sub>	N <sub>2</sub>				10	47	11x47	12x50			Ar
Premier	2	1.5	0.1	-	4	-	-	5.2	-	-	-	✓	✓	-	Batch
BIP®	0.02	0.01	0.1	0.1	1	-	-	5.7	-	-	✓	✓	-	✓	Batch
BIP® Plus	0.02	0.01	0.05	0.05	0.3	-	-	6.6	-	-	-	✓	-	-	Individual
<b>Nitrogen</b>	H <sub>2</sub> O	O <sub>2</sub>	THC <sup>1</sup>	CO+CO <sub>2</sub>	H <sub>2</sub>		CFC <sup>2</sup>		2	7	10	47	12x50		N <sub>2</sub>
Premier	2	3	0.5	-	-	-	-	5.2	✓	✓	-	✓	-	-	Batch
BIP®	0.02	0.01	0.1	0.5	1	-	-	5.7	-	-	✓	✓	-	✓	Batch
BIP® ECD	0.02	0.01	0.1	0.5	1	-	0.001	5.7	-	-	-	✓	-	-	Batch
BIP® Plus	0.02	0.01	0.05	0.05	0.05	-	-	6.8	-	-	-	✓	-	✓	Individual
Pharma	2	3	-	1+1	-	-	-	5.2	-	-	-	✓	-	✓	EP, GMP part II
<b>Carbon dioxide</b>	H <sub>2</sub> O	O <sub>2</sub>	THC <sup>1</sup>	CO	N <sub>2</sub>				10	47	11x47	12x50			CO <sub>2</sub>
Premier	7	10	5	2	25	-	-	4.5	-	-	✓	✓	✓	-	Batch
Premier Liquid	7	10	5	2	25	-	-	4.5	-	-	✓	✓	-	-	Batch
UltraPure	2	0.5	0.1	0.5	2	-	-	5.5	-	-	-	✓	-	-	Individual
UltraPure Liquid	2	0.5	0.1	0.5	2	-	-	5.5	-	-	-	✓	-	-	Individual
<b>Helium</b>	H <sub>2</sub> O	O <sub>2</sub>	THC <sup>1</sup>	CO+CO <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>	CFC <sup>2</sup>		10	47	11x47	12x50	18x50		He
Premier	2	1	0.5	-	5	-	-	5.2	-	-	-	✓	✓	-	Batch
BIP®	0.02	0.01	0.1	0.5	1	-	-	5.7	-	-	✓	✓	-	✓	Batch
BIP® ECD	0.02	0.01	0.1	0.5	1	-	0.001	5.7	-	-	-	✓	-	-	Batch
BIP® Plus	0.02	0.01	0.05	0.05	0.1	0.1	-	6.7	-	-	-	✓	-	✓	Individual
<b>Hydrogen</b>	H <sub>2</sub> O	O <sub>2</sub>	THC <sup>1</sup>	CO+CO <sub>2</sub>	N <sub>2</sub>				10	47	11x47	17x50			H <sub>2</sub>
Premier Plus	2	1	0.1	0.5	5	-	-	5.2	-	-	✓	✓	✓	✓	Batch
BIP®	0.02	0.1	0.01	0.5	2	-	-	5.7	-	-	-	✓	-	-	Batch
BIP® Plus	0.02	0.1	0.01	0.05	0.2	-	-	6.6	-	-	-	✓	-	-	Individual
<b>Oxygen</b>	H <sub>2</sub> O		THC <sup>1</sup>	CO+CO <sub>2</sub>	N <sub>2</sub>	H <sub>2</sub>			10	47	11x47				O <sub>2</sub>
Premier	3	-	1	1	10	1	-	4.5	-	-	-	✓	-	-	Batch
UltraPure	1	-	0.5	0.5	5	0.5	-	5.2	-	-	✓	✓	✓	-	Batch
UltraPure Plus	0.5	-	0.1	0.1	0.4	0.1	-	5.8	-	-	✓	✓	-	-	Individual
Pharma	5	-	-	1+1	-	-	-	4.5	-	-	-	✓	✓	-	EP, GMP part II

\*Equivalent water capacity in litres, details below

<sup>1</sup> THC = Total Hydrocarbons as CH<sub>4</sub>; <sup>2</sup> CFC = Chlorofluorocarbons; <sup>3</sup> ND = non detectable; <sup>4</sup> Except for Acetylene and CO<sub>2</sub>

## Description of the cylinder sizes

Water capacity	Air Products code	Description	Approximate contents <sup>4</sup>
2 L	X2S	Steel Cylinder	0.4m <sup>3</sup>
7 L	X7A	Aluminum Cylinder	1.4m <sup>3</sup>
10 L	X10S	Steel Cylinder	2m <sup>3</sup>
30 L	X30S	Steel Cylinder	5m <sup>3</sup>
47 L	X47S	Steel Cylinder	10m <sup>3</sup>
51 L	X51S	Steel Cylinder	10m <sup>3</sup>
11x47 L	11X47S	11 cyl. bank	110m <sup>3</sup>
12x50 L	12X50S	12 cyl. bank	120m <sup>3</sup>
17x50 L	17X50S	17 cyl. bank	170m <sup>3</sup>
18x50 L	18X50S	18 cyl. bank	235m <sup>3</sup>

### United Kingdom

Air Products PLC  
2 Millennium Gate,  
Westmere Drive  
Crewe CW1 6AP  
T 0800 389 02 02  
apukinfo@airproducts.co.uk

### Ireland

Air Products Ireland Ltd  
Unit 950,  
Western Industrial Estate  
Killeen Road, Dublin 12  
T 1800 99 50 29  
ieinfo@airproducts.com

## Explanation of Terminology

**Batch** – The product is filled on a manifold and Air Products carries out statistical batch analysis on cylinders from the same batch to verify conformance to the advertised specification.

**Individual** – The product is filled on a manifold, but each cylinder is individually analyzed to verify conformance to the advertised specification.

**EP, GMP part II** - Pharma grade gases are delivered with hard copy certificates of analysis as standard and are fully compliant with the monographs of the European, US and Japanese pharmacopoeias.

All work is carried out within the scope of our ISO:9001 2008 accredited Quality Management System. All analytical results are retained for quality control and auditing purposes. The full product specification is shown on the cylinder label together with a unique lot number delivering traceability to the filling location, raw material batch, and quality control records.

### Remarks:

- In purity shorthand the first digit refers to the number of 9's and the second digit to the following number. For example, 5.2 means 99.9992% overall purity, 6.0 means 99.99990% overall purity
- Other sizes, qualities and analyses available on request
- The above data can be subject to changes

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