

# Experis<sup>®</sup> ultra-high purity gases

- Purity
- Accuracy
- Stability
- Peace of Mind

## Experis<sup>®</sup> gases

Whatever your application, be it chemical analysis or process control, our Experis UHP (ultra-high purity) gas 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 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. Certificates of conformity for all our ultra-high purity gases are available on request. 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<sup>®</sup> 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<sup>®</sup> technology you are guaranteed unrivalled purity
- Accurate analyses are ensured, giving you greater peace of mind

## UHP gases: standard specifications

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

Grade	Specifications (in ppm molar when not specified)							Purity	Cylinder Size*		Analytical verification
<b>Acetylene</b>	PH <sub>3</sub> +AsH <sub>3</sub>	H <sub>2</sub> S							40		C <sub>2</sub> H <sub>2</sub>
Premier	25	25	-	-	-	-	-	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> /H <sub>2</sub> O/SO <sub>2</sub> /H <sub>2</sub> S		10	50	Air
Zero (20.9% O <sub>2</sub> +/-1%)	3	-	0.2	1	-	-	-	5.0	✓	✓	Batch
5.5	1	-	-	0.1	1	-	-	5.5	✓	✓	Batch
Zero Plus (20.9% O <sub>2</sub> +/-0.2%)	0.5	-	0.05	0.1	-	-	ND <sup>3</sup>	-	-	✓	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	50	Ar
Premier	2	1.5	0.1	-	4	-	-	5.2	✓	✓	Batch
5.5	1	1	0.1	0.5	2	-	-	5.5	✓	✓	Batch
6.0	0.5	0.1	0.05	0.05	0.3	-	-	6.0	✓	✓	Individual
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>		10	50	N <sub>2</sub>
Premier	2	3	0.5	-	-	-	-	5.2	✓	✓	Batch
5.5	1	2	0.1	0.5	1	-	-	5.5	-	✓	Batch
6.0	0.5	0.4	0.05	0.05	0.05	-	-	6.0	-	-	Individual
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
<b>Pharmac</b>	2	3	-	1+1	-	-	-	5.2	-	✓	Batch
<b>Carbon dioxide</b>	H <sub>2</sub> O	O <sub>2</sub>	THC <sup>1</sup>	CO	N <sub>2</sub>				10	50	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	50	He
Premier	2	1	0.5	-	5	-	-	5.2	-	✓	Batch
5.5	1	0.5	0.1	0.5	1	-	-	5.5	-	✓	Batch
6.0	0.5					-	-	6.0	-	✓	Individual
BIP®	0.02	0.01	0.1	0.1	1	-	-	5.7	-	✓	Batch
BIP® ECD	0.02	0.01	0.1	0.1	1	-	0.001	5.7	-	✓	Batch
BIP® Plus	0.02	0.01	0.05	0.05	0.1	0.1	-	6.8	-	✓	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	50	H <sub>2</sub>
Premier	2	2	0.5	0.5	5	-	-	5.0	✓	✓	Batch
UltraPure	1	0.5	0.1	0.5	2	-	-	5.5	-	✓	Batch
UltraPure Plus	0.5	0.1	0.05	0.05	0.2	-	-	6.0	✓	✓	Individual
<b>BIP® NEW</b>	0.02	0.1	0.01	0.5	2	-	-	5.7	-	✓	Batch
<b>BIP® Plus NEW</b>	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	50	O <sub>2</sub>
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

\*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> Except for Acetylene and CO<sub>2</sub>

## Description of the cylinder sizes

Water capacity	Air Products code	Description	Approximate contents
0 L	X10S	Steel cylinder	2m <sup>3</sup>
40 L	X40S	Steel cylinder	7m <sup>3</sup>
50 L	X50S	Steel cylinder	10m <sup>3</sup>

Cylinder packs available on request.

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## 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 analysed to verify conformance to the advertised specification.

## 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.
- Usual filling pressure: 200 bar.g
- The above data can be subject to changes.



GENERATING A CLEANER FUTURE