

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

## Technical specification

### Oxygen



Air Products' Experis speciality gases range includes a number of UHP (ultra-high purity) Oxygen products with specifications intended to deliver peace of mind whatever your application. Whether it is chemical analysis or process control, our experts are on hand to help you select the right gas for your requirements. The range includes gas with unrivalled specifications of critical impurities and a comprehensive range of package options.

#### Overview of grades and analytical verification

	Oxygen Industrial (2.5)	Oxygen Premier (4.5)	Oxygen Pharma (4.5)	Oxygen UltraPure (5.2)	Oxygen UltraPure Plus (5.8)
Purity	99.5%	99.995%	99.995%	99.9992%	99.9998%
Analytical verification*	N/A	Batch	EM GMP Part II	Batch	Individual
Hydrogen (ppm)	-	<1	-	<0.5	<0.1
Nitrogen (ppm)	-	<10	-	<5	<0.4
CO+CO <sub>2</sub> (ppm)	-	<1	<1+1	<0.5	<0.1
Water (ppm)	<30	<3	<5	<1	<0.5
THC (ppm)	-	<1	-	<0.5	<0.1
Argon (ppm)	-	-	-	-	<0.1

#### Physical properties

Molecular weight	32
State of product in cylinder	Gas
Boiling point at 1 atm (°C)	-183
Liquid density at boiling point (g/ml)	1.14
Gas density at 20°C (g/l)	1.265
Vapour pressure at 20°C (bar g)	n/a
Flammability limits in air (vol % in air)	none

#### \*Explanation of terminology

**Batch** – Air Products carries out statistical batch analysis on cylinders from the same batch to verify conformance to the advertised specification.

**Individual** – Each cylinder is individually analysed 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.

#### Benefits of Oxygen UltraPure Plus

For **elemental analysis** techniques the level of Nitrogen impurity in the reference and oxidant gases is usually critical because it is commonly the Nitrogen content of the sample which requires accurate detection and measurement. A high level of Nitrogen in these gases can severely affect the accuracy of the analyser. Therefore, using **Oxygen UltraPure Plus** for this application which has **< 1 part per million** of this critical impurity can dramatically improve analyser sensitivity.

## Oxygen specifications

Product	Product code	Size	Valve	Pressure (bar g)	Contents (m <sup>3</sup> )
Oxygen Premier 4.5 (D02)	26062	x47s	BS3	200	10
Oxygen Pharma (D02)	154741	x47s	BS3	200	10
Oxygen Pharma (D09)	475962	12x50s	BS3	200	126
Oxygen UltraPure 5.2 (D02)	26003	x10s	BS3	200	2
Oxygen UltraPure 5.2 (D02)	26001	x47s	BS3	200	10
Oxygen UltraPure 5.2 (D09)	26002	11x47s	BS3	200	104
Oxygen UltraPure Plus 5.8 (D02)	26063	x10s	BS3	200	2
Oxygen UltraPure Plus 5.8 (D02)	26004	x47s	BS3	200	10

Other UHP gases available from the speciality gases product portfolio include: Acetylene, Argon, Carbon Dioxide, Helium, Hydrogen, Nitrogen and Synthetic Air.

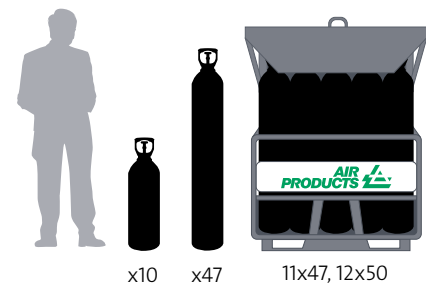
For further information on these gases please see individual data sheets.

## Cylinder and pack specifications

Size	Pressure (bar g)	Height (mm)	Diameter (mm)	Width (mm)	Length (mm)	Empty weight (kg)	Full weight (kg)
x10s	200	655	176	-	-	20	23
x47s	200	1525	230	-	-	67	80
11x47s	200	1963	-	680	1000	1046	1184
12x50s	200	1900	-	965	735	1026	1225

Dimensions and weights are approximate, actual cylinder values may differ.

Oxygen is available in the following cylinder size options:



## Recommended control equipment\*

Type	Model	Product code
Pressure regulator	Two stage, brass, high purity, low flow rates	R300-C
Pressure regulator	Single stage, brass, high purity	R400-C
Pressure regulator	Two stage, brass, high purity	R500-C
Manifold	Single wing, high purity	M1000-C
Manifold	Two wing, manual changeover, high purity	M2000-C
Manifold	Two wing, automatic changeover, high purity	M3000-C

\*Please refer to the **Equipment Centre Selection Tool** for full equipment information.

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