


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p style="text-align: center;">4183</p> <p style="text-align: center;">Accredited to ISO Guide 34:2000</p>	BOC	
	Issue No: 004	Issue date: 20 January 2010
<p>The Priestley Centre 10 Priestley Road The Surrey Research Park Guildford Surrey GU2 7XY</p>	<p>Contact: Dr K D Cleaver Tel: +44 (0)1483 244308 Fax: +44 (0)1483 450741 E-Mail: kevin.cleaver@boc.com Website: www.BOCspecialGases.co.uk</p>	
Reference material production performed by the locations specified below		

Locations covered by the organisation and their relevant activities

Locations:

Location details	Activity	Location code
<p>Address The Priestley Centre 10 Priestley Road The Surrey Research Park Guildford Surrey GU2 7XY</p> <p>Local contact Dr K D Cleaver Tel: +44 (0)1483 244308 Fax: +44 (0)1483 450741 Email: kevin.cleaver@boc.com</p>	<p><u>Head Office</u></p>	<p>Guildford</p>
<p>Address 28 Deer Park Road London SW19 3UF</p> <p>Local contact Mr Paul Willson Tel: +44 (0)20-8542 6677 Fax: +44 (0)20-8543 9678 Email: paul.willson@boc.com</p>	<p>MOT Mixture Binary Gas Mixtures Ethanol/Air Mixtures</p>	<p>Morden</p>
<p>Address Hobson Way Stallingborough Immingham NE Lincolnshire DN41 8DZ</p> <p>Local contact Mr Walter Branowsky Tel: +44 (0)1469 577977 Fax: +44 (0)1469 576493 Email: walter.branowsky@boc.com</p>	<p>Natural Gas Mixtures Multi-component Gas Mixtures</p>	<p>Immingham</p>



4183

Accredited to
ISO Guide 34:2000

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

BOC

Issue No: 004 **Issue date:** 20 January 2010

Reference material production performed by the locations specified

DETAIL OF ACCREDITATION

Matrix / Artefact	Property Value(s) / Identity / Characterisation Range	Characterisation Procedure / Technique
<p><u>Analysed Gases</u></p> <p>Quaternary gas mixture</p> <p>Binary gas mixtures</p> <p>Ethanol in air calibration standard for evidential breath testing</p> <p>Natural gas</p>	<p>Carbon monoxide (3.5 %) Carbon dioxide (14 %) Propane (2000 ppm) Nitrogen (balance)</p> <p>Propane/air (1.7 ppm to 1000 ppm) Carbon monoxide/nitrogen (2 ppm to 10 %) Carbon monoxide/air (2 ppm to 3.1 %) Carbon dioxide/nitrogen (0.1 % to 15 %) Nitric oxide/nitrogen (2 ppm to 1 %) Oxygen/nitrogen (0.5 % to 25 %) Sulphur dioxide/nitrogen (10 ppm to 3000 ppm)</p> <p>Ethanol/air 35 µg per 100 ml air (191.4 ppm) 22 µg per 100 ml air (120.3 ppm)</p> <p>Methane (55 % to 100 %) Ethane (0.008 % to 11 %) Propane (0.01 % to 8 %) <i>i</i>-Butane (0.004 % to 1.2 %) <i>n</i>-Butane (0.004 % to 1.3 %) <i>i</i>-Pentane (0.003 % to 0.4 %) <i>n</i>-Pentane (0.003 % to 0.4 %) <i>neo</i>-Pentane (0.002 % to 0.4 %) Hexane (0.0009 % to 0.35 %) C₆+ (0.0009 % to 0.35 %) Helium (0.01 to 0.5 %) Nitrogen (0.02 % to 20.4 %) Carbon Dioxide (0.09 % to 12 %)</p> <p>Calculated values for: Calorific Value (superior) Calorific Value (inferior) Relative density Density Wobbe Index Mean Molecular Mass Compression Factor</p>	<p>Measurement by a single, primary, definitive method at BOC</p> <p>Measurement by a single, primary, definitive method at BOC</p> <p>Measurement by a single, primary, definitive method at BOC</p> <p>Measurement by a single, primary, definitive method at BOC. Certification of Natural Gas mixtures against nationally traceable gas reference standards using gas chromatography in accordance with ISO 6143:2001 C₆+ is the sum of hydrocarbon amount fractions containing six carbon atoms or greater</p> <p>Calculation of physical properties in accordance with ISO 6976:1995</p>



4183

Accredited to
ISO Guide 34:2000

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

BOC

Issue No: 004 **Issue date:** 20 January 2010

Reference material production performed by the locations specified

Matrix / Artefact	Property Value(s) / Identity / Characterisation Range	Characterisation Procedure / Technique
<p><u>Analysed Gases</u> (cont'd)</p> <p>Natural gas (cont'd)</p> <p>Gas mixtures</p>	<p>C₁ to C₃ (0.0008 % to 100 %)</p> <p>C₄ (0.001 % to 50 %)</p> <p>C₅ (0.001 % to 9 %)</p> <p>C₆ (0.001 % to 1.5 %)</p> <p>C₇ (0.001 % to 0.5 %)</p> <p>C₈ (0.001 % to 0.2 %)</p> <p>C₉ (0.001 % to 0.2 %)</p> <p>C₁₀ (0.001 % to 0.05 %)</p> <p>Benzene (0.001 % to 1 %)</p> <p>Toluene (0.001 % to 0.4 %)</p> <p>Xylenes, m, p and o (0.001 % to 0.1 %)</p> <p>Argon (0.1 % to 100 %)</p> <p>Carbon dioxide (0.03 % to 100 %)</p> <p>Carbon monoxide (0.001 % to 100 %)</p> <p>Helium (0.1 % to 100 %)</p> <p>Hydrogen (0.08 % to 100 %)</p> <p>Nitrogen (0.1 % to 100 %)</p> <p>Oxygen (0.05 % to 100 %)</p>	<p>Measurement by a single, primary, definitive method at BOC</p> <p>Multi-component gaseous mixtures prepared by gravimetry in accordance with ISO 6142 with analytical validation against traceable standards</p> <p>Where more than 5 components fall within the above scope for Natural gas, certification shall be using nationally traceable gas reference standards</p>
	<p>END</p>	