



NATIONAL PHYSICAL LABORATORY

Teddington Middlesex UK TW11 0LW Telephone +44 20 8977 3222

Certificate of Calibration

PRIMARY REFERENCE GAS MIXTURE



4002

Cylinder Number: 1635

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CUSTOMER: Laboratoire des Sciences du Climat et de l'Environnement
ADDRESS: CEA Saclay - Orme des Merisiers, Unité mixte CNRS-CEA-UVSQ,
Bâtiment 701, 91 191 Gif sur Yvette Cedex, France
CALIBRATION DATE: 04 November 2013

AMOUNT FRACTIONS:

Component	Amount fraction / ($\mu\text{mol/mol}$)
Nitrogen monoxide	10.00 ± 0.06
Nitrogen oxides	10.00 ± 0.06
Nitrogen	Balance

The reported expanded uncertainties are based on standard uncertainties multiplied by a coverage factor $k=2$, providing a coverage probability of approximately 95 %. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

METHODS: Preparation: gravimetry; Analysis: chemiluminescence
TRACEABILITY: The values on this certificate are traceable to NPL Primary Standards
EXPIRY: Certificate valid for 2 years from the date of issue
PRESSURE: Fill pressure: 100 bar; Minimum utilisation pressure: 5 bar
STORAGE: No special precautions are required
HANDLING: Refer to ISO 16664
OUTLET: BS341 No. 14 valve
INTENDED USE: Calibration standard

Reference: 2013080419

Date of issue: 11 November 2013

Signed:  (Authorised Signatory)

Name: Dr A S Brown (on behalf of NPLML)

Checked by: 

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This certificate is consistent with the capabilities that are included in Appendix C of the MRA drawn up by the CIPM. Under the MRA, all participating institutes recognize the validity of each other's calibration and measurement certificates for the quantities, ranges and measurement uncertainties specified in Appendix C (for details see <http://www.bipm.org>).