



Certificate of Calibration

NPL PRIMARY REFERENCE MATERIAL

Cylinder Number: D982552

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

CUSTOMER: Czech Hydrometeorological Institute
ADDRESS: Ambient Air Quality Calibration Laboratory, Generala Sisky 942, 143 00
 Prague 4, Czech Republic
CALIBRATION DATE: 08 June 2022
AMOUNT FRACTIONS:

Component	Amount fraction / (nmol/mol)	Component	Amount fraction / (nmol/mol)
Ethane	10.10 ± 0.21	2-methylpentane	10.22 ± 0.21
Ethene	9.91 ± 0.20	<i>n</i> -hexane	10.22 ± 0.21
Propane	9.97 ± 0.30	Isoprene	10.17 ± 0.21
Propene	9.91 ± 0.20	<i>n</i> -heptane	10.24 ± 0.21
2-methylpropane	10.17 ± 0.26	Benzene	9.92 ± 0.20
<i>n</i> -butane	10.08 ± 0.26	2,2,4-trimethylpentane	9.61 ± 0.20
Ethyne	10.4 ± 0.6	<i>n</i> -octane	9.64 ± 0.20
<i>trans</i> -but-2-ene	10.12 ± 0.21	Toluene	9.65 ± 0.25
But-1-ene	10.06 ± 0.21	Ethylbenzene	10.44 ± 0.27
<i>cis</i> -but-2-ene	10.09 ± 0.21	<i>m</i> -xylene + <i>p</i> -xylene	20.3 ± 0.6
2-methylbutane	9.69 ± 0.20	<i>o</i> -xylene	9.99 ± 0.25
<i>n</i> -pentane	9.73 ± 0.20	1,3,5-trimethylbenzene	9.84 ± 0.25
1,3-butadiene	10.19 ± 0.21	1,2,4-trimethylbenzene	10.00 ± 0.30
<i>trans</i> -pent-2-ene	9.92 ± 0.20	1,2,3-trimethylbenzene	9.78 ± 0.30
Pent-1-ene	9.94 ± 0.20	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: gas chromatography (FID)
TRACEABILITY: The values on this certificate are traceable to NPL Primary Standards
EXPIRY: Certificate valid for 5 years from the date of issue
PRESSURE: Fill pressure: 105 bar; Minimum utilisation pressure: 10 bar
STORAGE: No special precautions are required
HANDLING: Refer to ISO 16664
OUTLET: DIN 477 No. 1 valve
INTENDED USE: Calibration standard

Reference: 2022040145

Date of issue: 22 June 2022

Signed:  (Authorised Signatory)

Name: Dr D R Worton (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 recognise 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>).