



Certificate of Calibration

NPL PRIMARY REFERENCE MATERIAL

Cylinder Number: D723269

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CUSTOMER: Finnish Meteorological Institute
ADDRESS: Air Quality Research, P.O Box 503, FI-00101 Helsinki, Finland
CALIBRATION DATE: 28 July 2020
AMOUNT FRACTIONS:

Component	Amount fraction / (nmol/mol)	Component	Amount fraction / (nmol/mol)
Ethane	4.11 ± 0.13	2-methylpentane	4.26 ± 0.09
Ethene	4.03 ± 0.11	<i>n</i> -hexane	4.26 ± 0.09
Propane	4.06 ± 0.13	Isoprene	4.24 ± 0.09
Propene	4.03 ± 0.09	<i>n</i> -heptane	4.27 ± 0.09
2-methylpropane	4.13 ± 0.11	Benzene	4.09 ± 0.09
<i>n</i> -butane	4.10 ± 0.09	2,2,4-trimethylpentane	4.01 ± 0.09
Ethyne	4.25 ± 0.22	<i>n</i> -octane	4.02 ± 0.09
<i>trans</i> -but-2-ene	4.11 ± 0.09	Toluene	3.97 ± 0.10
But-1-ene	4.09 ± 0.09	Ethylbenzene	4.30 ± 0.11
<i>cis</i> -but-2-ene	4.10 ± 0.09	<i>m</i> -xylene + <i>p</i> -xylene	8.36 ± 0.21
2-methylbutane	4.04 ± 0.09	<i>o</i> -xylene	4.11 ± 0.11
<i>n</i> -pentane	4.06 ± 0.09	1,3,5-trimethylbenzene	4.16 ± 0.11
1,3-butadiene	4.14 ± 0.09	1,2,4-trimethylbenzene	4.12 ± 0.11
<i>trans</i> -pent-2-ene	4.08 ± 0.09	1,2,3-trimethylbenzene	4.05 ± 0.11
Pent-1-ene	4.15 ± 0.09	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: 2020020215-2 **Date of issue:** 27 August 2020
Signed:  (Authorised Signatory)
Name: Dr D R Worton (on behalf of NPLML)
Checked by: Yoana Hristova

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