

Key comparison CCQM-K82

MEASURAND : Amount-of-substance fraction of Methane in air  
 NOMINAL VALUES : 1800 nmol/mol and 2200 nmol/mol

$x_{Ri}$  : amount-of-substance fraction in the cylinder as predicted by the linear analysis function for the corresponding analyzer response (ratio to the control cylinder with the cavity ring down spectroscopy method 2, see Final Report)

$u_{Ri}$  : standard uncertainty of  $x_{Ri}$

$x_i$  : value assigned by the participating laboratory  $i$  based on gravimetric preparation

$u_i$  : standard uncertainty including contributions from verification associated with the assigned value  $x_i$

Lab $i$	Cylinder	$x_{Ri}$ / (nmol/mol)	$u_{Ri}$ / (nmol/mol)	$x_i$ / (nmol/mol)	$u_i$ / (nmol/mol)
KRISS	D 929248	1797.60	0.69	1797.10	0.50
KRISS	D 985705	2202.20	0.71	2200.90	0.60
NIM	CAL017763	1825.60	0.67	1825.20	0.85
NIM	CAL017790	2194.00	0.70	2193.80	1.00
NIST	FB03569	1796.80	0.69	1796.76	0.85
NIST	FB03587	2194.60	0.70	2195.96	0.84
NMIJ	CPB-28035	1796.40	0.69	1797.30	0.65
NMIJ	CPB-28219	2197.50	0.70	2198.30	0.65
NOAA	FB03578	1814.30	0.68	1812.10	1.30
NOAA	FB03593	2213.80	0.71	2208.90	1.40
NPL	221727	1800.60	0.69	1799.40	1.80
NPL	233097	2201.10	0.71	2199.60	2.20
VNIIM	D 249682	1810.30	0.68	1812.90	1.30
VNIIM	D 249845	2214.60	0.71	2214.60	1.25
VSL	D 249292	1797.80	0.69	1798.29	2.00
VSL	D 249289	2195.60	0.70	2196.33	2.40

For each cylinder gravimetrically prepared by each laboratory, the key comparison reference value is the value  $x_{Ri}$  predicted by the linear analysis function for the corresponding analyzer response (ratio to the control cylinder with the cavity ring down spectroscopy method 2, see Section 8 of the Final Report), and  $u_{Ri}$  its associated standard uncertainty.

The degree of equivalence of laboratory  $i$  with respect to the key comparison reference value is given by a pair of terms:  $D_i = x_i - x_{Ri}$  and its expanded uncertainty ( $k = 2$ ),  $U_i$ , both expressed in nmol/mol.

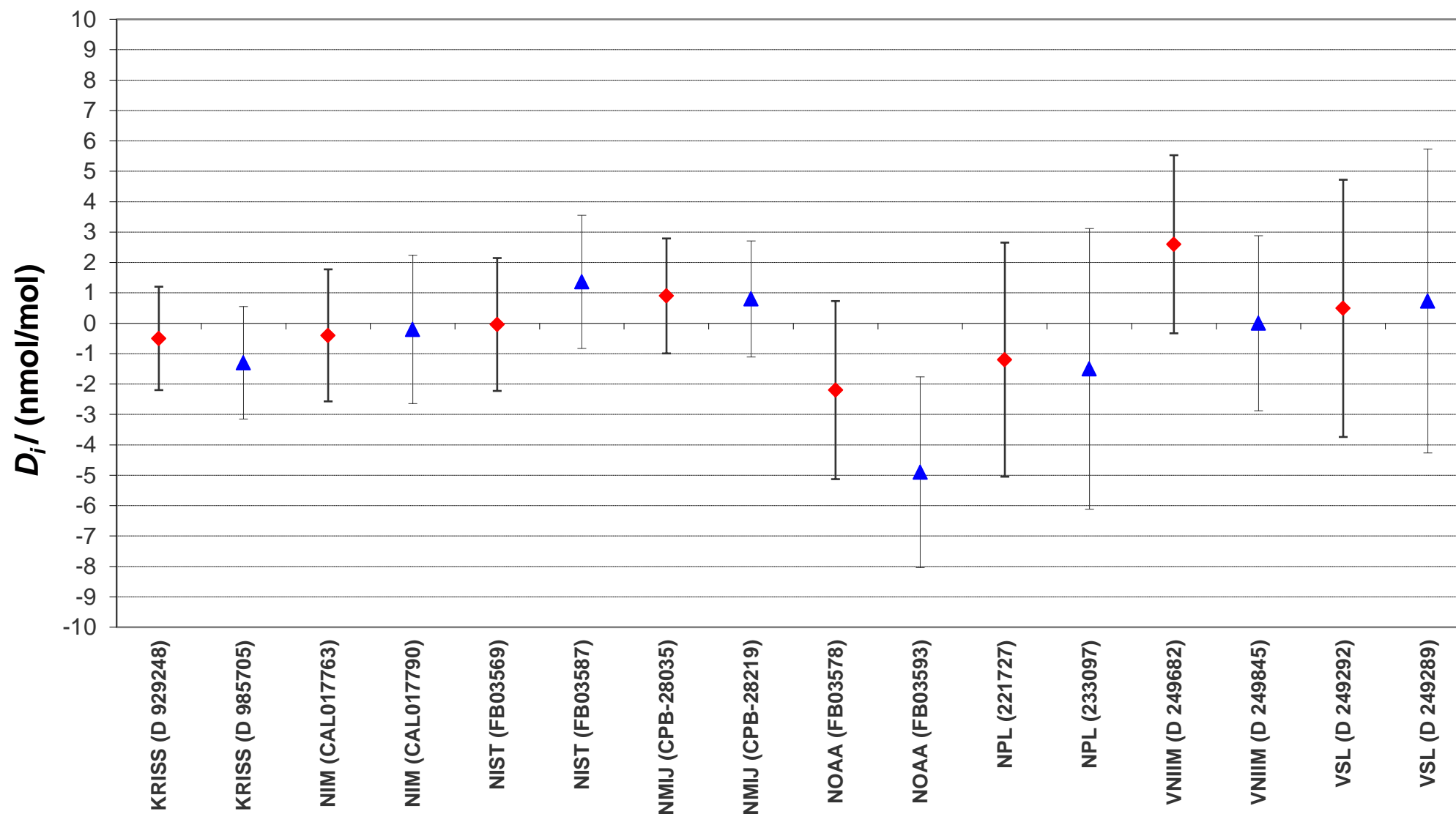
NOMINAL VALUES : 1800 nmol/mol and 2200 nmol/mol

Lab  $i$  ↓

	Cylinder	$D_i$ / (nmol/mol)	$U_i$ / (nmol/mol)
KRISS	D 929248	-0.50	1.70
KRISS	D 985705	-1.30	1.85
NIM	CAL017763	-0.40	2.17
NIM	CAL017790	-0.20	2.44
NIST	FB03569	-0.04	2.19
NIST	FB03587	1.36	2.19
NMIJ	CPB-28035	0.90	1.89
NMIJ	CPB-28219	0.80	1.91
NOAA	FB03578	-2.20	2.93
NOAA	FB03593	-4.90	3.14
NPL	221727	-1.20	3.85
NPL	233097	-1.50	4.62
VNIIM	D 249682	2.60	2.93
VNIIM	D 249845	0.00	2.88
VSL	D 249292	0.49	4.23
VSL	D 249289	0.73	5.00

# CCQM-K82 Methane in air

Degrees of equivalence [ $D_i$  and its expanded uncertainty ( $k = 2$ ),  $U_i$ ]



**Red diamonds** : measurement of standards prepared with the amount-of-substance fraction of 1800 nmol/mol  
**Blue triangles** : measurement of standards prepared with the amount-of-substance fraction of 2200 nmol/mol