

**Key comparison BIPM.QM-K1**

**MEASURAND :** Ozone mole fraction in dry air

**NOMINAL VALUE :** 80 nmol/mol

$x_i$ : measurement result obtained with laboratory *i* Photometer

$u_i$ : combined standard uncertainty of  $x_i$

$x_{SRP27}$ : measurement result obtained with the BIPM Photometer SRP27

$u_{SRP27}$ : combined standard uncertainty of  $x_{SRP27}$

Lab <i>i</i>	$x_i$ / (nmol/mol)	$u_i$ / (nmol/mol)	$x_{SRP27}$ / (nmol/mol)	$u_{SRP27}$ / (nmol/mol)	Date of measurement
CHMI	80.34	0.37	80.47	0.37	September 2007
NIST (1)	76.50	0.44	76.54	0.52	January 2007
NIST (2)	76.30	0.43	76.34	0.52	January 2007
VNIIM (1)	79.76	0.31	80.04	0.29	November 2007
VNIIM (2)	81.13	0.32	81.36	0.29	November 2007
ISCI (1)	83.95	0.60	84.56	0.38	June 2007
ISCI (2)	86.22	0.60	86.28	0.38	June 2007
INRIM	79.96	0.20	80.34	0.37	September 2007
FMI	80.20	0.36	80.37	0.36	October 2007
KRISS	82.13	0.65	80.23	0.37	October 2007
UBA	78.31	0.44	78.58	0.53	March 2007
NIM	71.12	0.42	71.53	0.51	March 2008
LNE	80.79	0.37	81.14	0.35	April 2008
NPL	79.62	0.28	80.21	0.37	May 2008
METAS	79.68	0.26	80.12	0.36	June 2008
NMISA	80.00	1.30	80.76	0.37	July 2008
JRC	78.19	0.44	78.49	0.53	December 2008
NPLI	79.68	0.44	79.90	0.54	February 2009

Two results are given for NIST, VNIIM and ISCI as expected from [BIPM.QM-K1 Protocol B](#).

**Key comparison BIPM.QM-K1**

**MEASURAND :** Ozone mole fraction in dry air  
**NOMINAL VALUE :** 420 nmol/mol

$x_i$ : measurement result obtained with laboratory *i* Photometer  
 $u_i$ : combined standard uncertainty of  $x_i$   
 $x_{SRP27}$ : measurement result obtained with the BIPM Photometer SRP27  
 $u_{SRP27}$ : combined standard uncertainty of  $x_{SRP27}$

Lab <i>i</i>	$x_i$ / (nmol/mol)	$u_i$ / (nmol/mol)	$x_{SRP27}$ / (nmol/mol)	$u_{SRP27}$ / (nmol/mol)	Date of measurement
CHMI	418.00	1.25	418.44	1.25	September 2007
NIST (1)	436.50	1.74	436.92	2.27	January 2007
NIST (2)	432.00	1.72	432.61	2.24	January 2007
VNIIM (1)	410.70	1.22	412.17	1.25	November 2007
VNIIM (2)	419.70	1.25	421.52	1.28	November 2007
ISCI (1)	418.06	1.64	420.70	1.45	June 2007
ISCI (2)	422.92	1.66	423.66	1.46	June 2007
INRIM	419.13	0.56	420.85	1.26	September 2007
FMI	418.92	1.26	420.49	1.26	October 2007
KRISS	422.03	2.09	419.54	1.26	October 2007
UBA	419.70	1.68	420.62	2.18	March 2007
NIM	415.52	1.66	417.38	2.17	March 2008
LNE	420.51	1.26	422.31	1.29	April 2008
NPL	417.75	1.27	419.26	1.26	May 2008
METAS	418.15	0.63	420.03	1.26	June 2008
NMISA	419.61	1.64	420.86	1.26	July 2008
JRC	409.51	1.64	410.63	2.13	December 2008
NPLI	399.50	1.60	401.12	2.08	February 2009

Two results are given for NIST, VNIIM and ISCI as expected from [BIPM.QM-K1 Protocol B](#).

Key comparison BIPM.QM-K1

MEASURAND : Ozone mole fraction in dry air

For each nominal value of the ozone mole fraction, the key comparison reference value is the measurement result obtained with the BIPM Photometer SRP27.

The degree of equivalence of laboratory  $i$  with respect to the key comparison reference value is given by a pair of terms:

$D_i = x_i - X_{SRP27}$  and its expanded uncertainty ( $k = 2$ ),  $U_i = 2(u_i^2 + u_{SRP27}^2)^{1/2}$ , both expressed in nmol/mol.

For NMISA, correlations between the national standard and the key comparison reference standard are included:

$D_i = x_i - X_{SRP27}$  and its expanded uncertainty ( $k = 2$ ),  $U_i = 2(u_i^2 - u_{SRP27}^2)^{1/2}$ , both expressed in nmol/mol.

NOMINAL VALUE : 80 nmol/mol

NOMINAL VALUE : 420 nmol/mol

Lab  $i$  ↓

	$D_i$ / (nmol/mol)	$U_i$ / (nmol/mol)
CHMI	-0.13	1.03
NIST (1)	-0.04	1.36
NIST (2)	-0.04	1.36
VNIIM (1)	-0.28	0.86
VNIIM (2)	-0.22	0.87
ISCI (1)	-0.61	1.42
ISCI (2)	-0.06	1.43
INRIM	-0.37	0.83
FMI	-0.17	1.03
KRISS	1.89	1.50
UBA	-0.28	1.38
NIM	-0.41	1.31
LNE	-0.35	1.01
NPL	-0.59	0.92
METAS	-0.44	0.90
NMISA	-0.77	2.50
JRC	-0.30	1.38
NPLI	-0.23	1.39

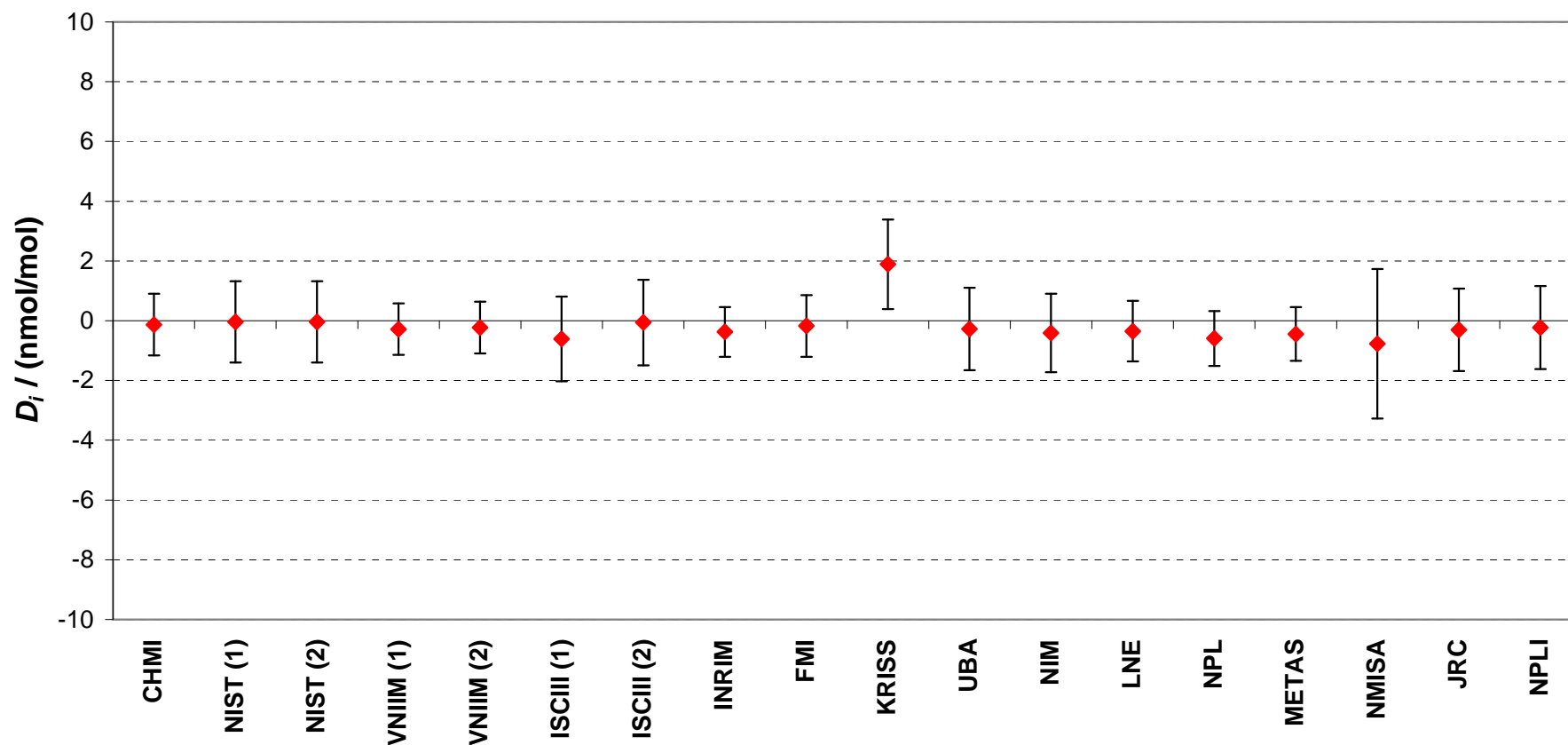
Lab  $i$  ↓

	$D_i$ / (nmol/mol)	$U_i$ / (nmol/mol)
CHMI	-0.45	3.54
NIST (1)	-0.42	5.71
NIST (2)	-0.61	5.66
VNIIM (1)	-1.47	3.50
VNIIM (2)	-1.82	3.58
ISCI (1)	-2.65	4.39
ISCI (2)	-0.75	4.43
INRIM	-1.72	2.76
FMI	-1.57	3.56
KRISS	2.49	4.88
UBA	-0.92	5.50
NIM	-1.85	5.46
LNE	-1.80	3.61
NPL	-1.51	3.57
METAS	-1.88	2.82
NMISA	-1.24	2.09
JRC	-1.12	5.37
NPLI	-1.62	5.25

### BIPM.QM-K1

Ozone at nominal mole fraction 80 nmol/mol

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



### BIPM.QM-K1

Ozone at nominal mole fraction 420 nmol/mol

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

