

BIPM.RI(II)-K1.Am-241, 2003 CCRI(II)-K2.Am-241, and 2006 COOMET.RI(II)-K2.Am.241

MEASURAND : Equivalent activity of ²⁴¹Am

Key comparison BIPM.RI(II)-K1.Am-241

x_i : result of measurement carried out in the SIR for the sample submitted by laboratory i

u_i : combined standard uncertainty of x_i

Lab i	x_i / MBq	u_i / MBq	Date of measurement
NPL	2056.9	4.7	2002-10-01
VNIM	2052.6	7.7	2006-08-03
POLATOM	2060.0	12.0	2009-01-28
MKEH	2038.0	4.3	2009-02-25
LNE-LNHB	2042.7	5.8	2011-05-05

Key comparison CCRI(II)-K2.Am-241

x_i : result of measurement carried out at laboratory i linked to the SIR through the NPL mother solution

u_i : combined standard uncertainty of x_i

Lab i	x_i / MBq	u_i / MBq	Year of measurement
BARC	2066.6	7.7	2003
BEV	2073	10	2003
BIPM	2060.0	4.8	2003
CIEMAT	2060.3	5.8	2003
CM-IIR	2058.1	4.7	2003
CNEA	2049.5	6.0	2003
IFIN-HH	2080.1	8.1	2003
ININ	2061	50	2003
JRC	2058.8	3.3	2003
KRISS	2061.2	6.4	2003
LNMRI/IRD	2075.6	3.9	2003
NIST	2055.0	4.8	2003
NMIJ	2059.5	6.0	2003
NMISA	2066.1	3.6	2003
PTB	2055.2	4.8	2003
SMU	2078	25	2003

Key comparison COOMET.RI(II)-K2.Am-241

x_i : result of measurement carried out at laboratory i
converted to the equivalent activity through the VNIM

u_i : combined standard uncertainty of x_i

Lab i	x_i / MBq	u_i / MBq	Year of measurement
BelGIM	2060	24	2006-06-01
CENTIS-DMR	2043	13	2006-06-01

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Key comparison BIPM.RI(II)-K1.Am-241

Key comparison reference value: the SIR reference value x_R for this radionuclide is 2055.8 MBq, with a standard uncertainty, $u_R = 2.8$ MBq (see section 4.1 of the Final Report dated November 2007).

The degree of equivalence of each laboratory with respect to the reference value is given by a pair of terms:

$D_i = (x_i - x_R)$ and U_i , its expanded uncertainty ($k = 2$), both expressed in MBq. With n the number of laboratories, $U_i = 2((1 - 2/n)u_i^2 + (1/n^2)\sum u_j^2)^{1/2}$ when each laboratory has contributed to the calculation of x_R

Linking CCRI(II)-K2.Am-241(2003) to BIPM.RI(II)-K1.Am-241

The value x_i is the equivalent activity for laboratory i participant in CCRI(II)-K2.Am-241 having been normalized using the SIR measurement of the NPL undiluted solution of the CCRI(II)-K2.Am-241 comparison.

The degree of equivalence of laboratory i participant in CCRI(II)-K2.Am-241 with respect to the key comparison reference value is given by a pair of terms: $D_i = (x_i - x_R)$ and U_i , its expanded uncertainty ($k = 2$), both expressed in MBq. The approximation

$U_i = 2(u_i^2 + u_R^2)^{1/2}$ is used in the Matrix of equivalence as none of these laboratories contributed to the key comparison reference value.

Linking COOMET.RI(II)-K2.Am-241 to BIPM.RI(II)-K1.Am-241

The value x_i is the equivalent activity for laboratory i participant in COOMET.RI(II)-K2.Am-241 having been normalized using the SIR measurement of the VNIIM solution of the COOMET.RI(II)-K2 comparison.

The degree of equivalence of laboratory i participant in COOMET.RI(II)-K2.Am-241 with respect to the key comparison reference value is given by a pair of terms: $D_i = (x_i - x_R)$ and U_i , its expanded uncertainty ($k = 2$), both expressed in MBq. The approximation

$U_i = 2(u_i^2 + u_R^2)^{1/2}$ is used in the Matrix of equivalence as none of these laboratories contributed to the key comparison reference value.

These statements make it possible to extend the BIPM.RI(II)-K1.Am-241 Matrix of equivalence to all participants in the CCRI(II)-K2.Am-241 and the COOMET.RI(II)-K2.Am-241 comparisons.

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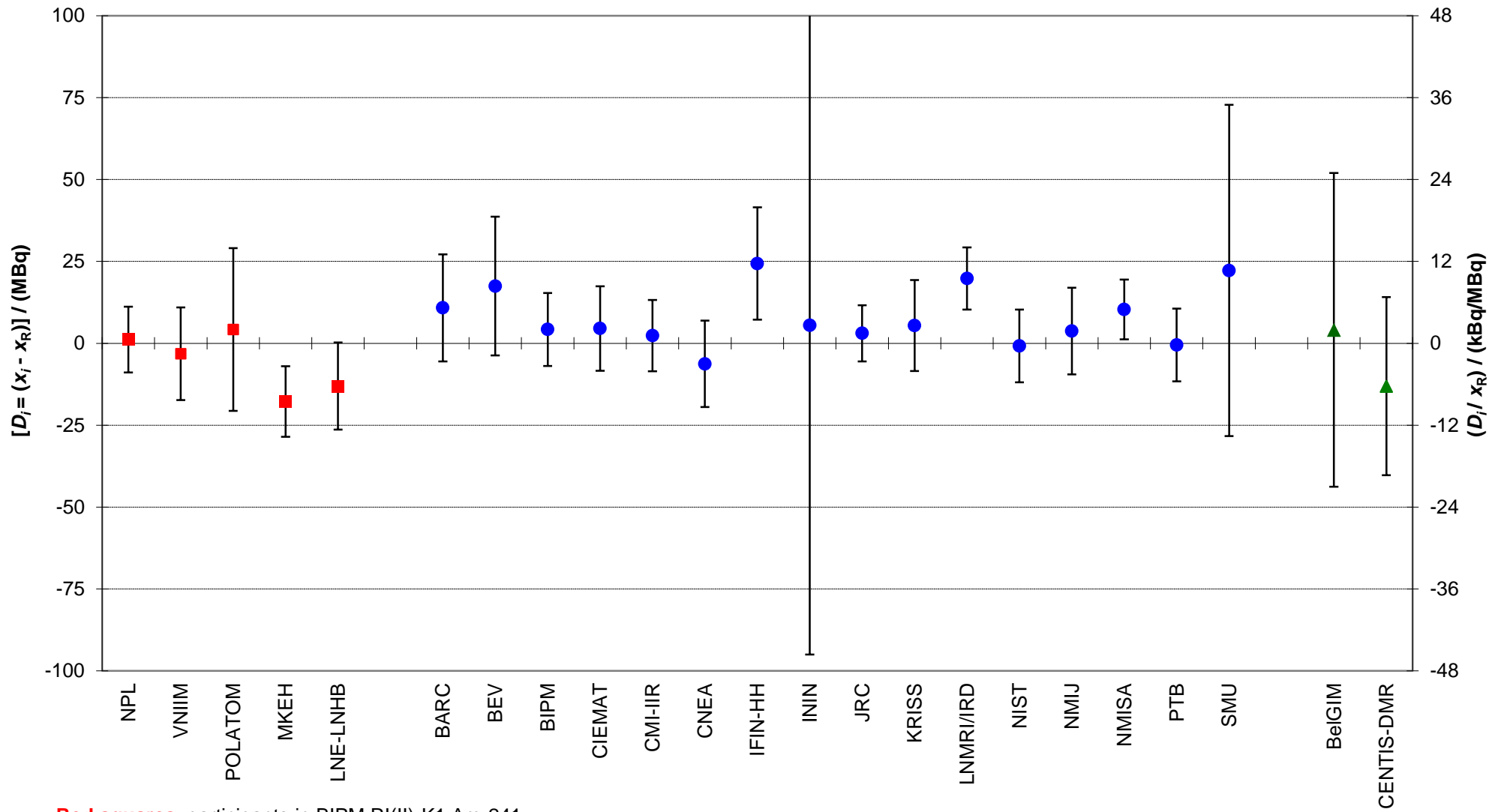
Lab *i* ↓

	<i>D_i</i>	<i>U_i</i>
	/ MBq	
NPL	1	10
VNIIM	-3	14
POLATOM	4	25
MKEH	-18	11
LNE-LNHB	-13	13

BARC	11	16
BEV	17	21
BIPM	4	11
CIEMAT	5	13
CMI-IIR	2	11
CNEA	-6	13
IFIN-HH	24	17
ININ	5	101
JRC	3	9
KRISS	5	14
LNMRI/IRD	20	10
NIST	-1	11
NMIJ	4	13
NMISA	10	9
PTB	-1	11
SMU	22	51

BelGIM	4	48
CENTIS-DMR	-13	27

**BIPM.RI(II)-K1.Am-241, 2003 CCRI(II)-K2.Am-241 and 2006 COOMET.RI(II)-K2.Am-241
Degrees of equivalence for equivalent activity of ²⁴¹Am**



Red squares: participants in BIPM.RI(II)-K1.Am-241
Blue circles: participants CCRI(II)-K2.Am-241
Green triangles: participants in COOMET.RI(II)-K2.Am-241

Note: the right-hand axis shows approximate relative value only.