

Key comparison BIPM.RI(II)-K1.Ce-141

MEASURAND : **Equivalent activity of ^{141}Ce**

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 / kBq	u_i / kBq	Date of measurement
ANSTO	266200	700	79-05-16
CMI-IIR	264200	1900	79-07-06
PTB	267589	1659	92-04-02
BNM-LNHB	265941	382	92-07-08
NIST	266115	1036	99-05-04

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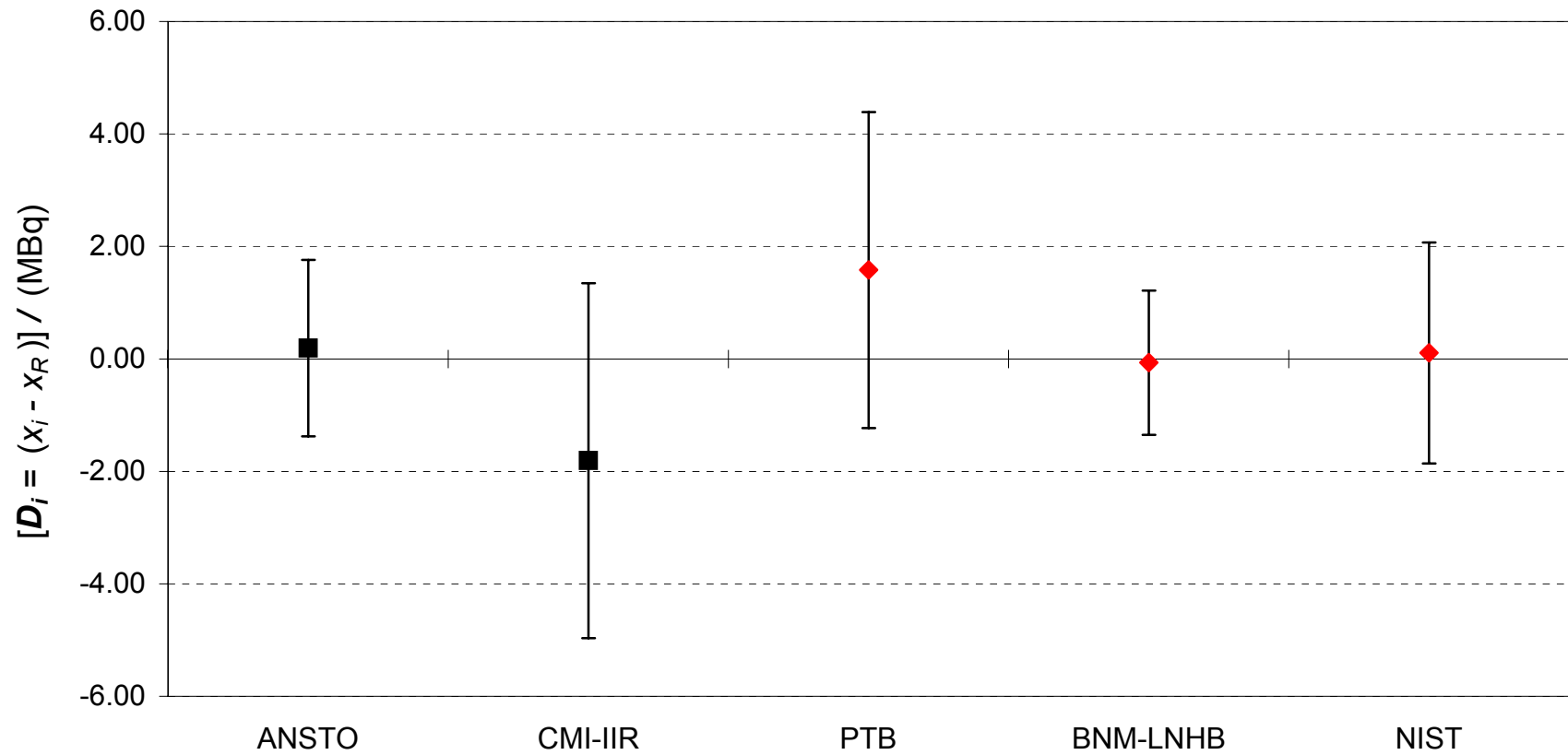
Key comparison reference value: the SIR reference value for this radionuclide x_R is 266.00 MBq, with a standard uncertainty u_R of 0.54 MBq. x_R is computed from the mean of the participants results.

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, $U_i = 2[(1 - 2/n)u_i^2 + (1/n^2)\sum u_i^2]^{1/2}$ (see Appendix 2 of the Final Report).

The degree of equivalence between two laboratories is given by a pair of terms: $D_{ij} = D_i - D_j = (x_i - x_j)$ and U_{ij} , its expanded uncertainty ($k = 2$), both expressed in MBq. The approximation $U_{ij} \sim 2(u_i^2 + u_j^2)^{1/2}$ is used in the following table.

Lab <i>i</i> ↓			Lab <i>j</i> →									
	D_i / MBq	U_i	ANSTO		CMI-IIR		PTB		BNM-LNHB		NIST	
			D_{ij} / MBq	U_{ij}	D_{ij} / MBq	U_{ij}	D_{ij} / MBq	U_{ij}	D_{ij} / MBq	U_{ij}	D_{ij} / MBq	U_{ij}
ANSTO	0.19	1.57			2.00	4.05	-1.39	3.60	0.26	1.59	0.09	2.50
CMI-IIR	-1.81	3.16	-2.00	4.05			-3.39	5.04	-1.74	3.88	-1.92	4.33
PTB	1.58	2.81	1.39	3.60	3.39	5.04			1.65	3.40	1.47	3.91
BNM-LNHB	-0.07	1.28	-0.26	1.59	1.74	3.88	-1.65	3.40			-0.17	2.21
NIST	0.11	1.97	-0.09	2.50	1.92	4.33	-1.47	3.91	0.17	2.21		

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Degrees of equivalence for equivalent activity of ¹⁴¹Ce



Black squares : participants' results prior to 1983