

Key comparison CCQM-K115

MEASURAND : Mass fraction of hCP

x_i result reported by laboratory i

$U_{\text{Lab } i}$ stated expanded uncertainty of x_i ($k = 2$)

Lab i	x_i / (mg/g)	$U_{\text{Lab } i}$ / (mg/g)	Approach
BIPM	831.32	10.05 / -10.08	Mass Bal.
HSA	773.9	44.00	PICAA
INMETRO	733.18	58.95	PICAA
LGC	791	26	PICAA
NIM	775.31	11.66	Mass Bal.
NMIJ	808	48	PICAA
NRC	825.29	17.70	PICAA
PTB	776.9	21.8	PICAA
UME	835.4	57.8	PICAA
NIMT	-	-	-
NMISA	-	-	-

Mass Bal. : *Mass Balance*

PICAA : *peptide impurity corrected amino acid analysis*

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MEASURAND : Mass fraction of overall peptide-related impurities

x_i result reported by laboratory i
 $U_{\text{Lab } i}$ stated expanded uncertainty of x_i ($k = 2$)

Lab i	x_i / (mg/g)	$U_{\text{Lab } i}$ / (mg/g)	Approach
BIPM	83.26	+1.51 / -1.48	LC-hrMS
HSA	88.6	11.6	LC-hrMS
INMETRO	146.11	7.94	LC-CAD-UV
LGC	59.2	2.1	ULC-tofMS
NIM	102.58	3.86	LC-hrMS LC-MS/MS
NMIJ	30.1	1.4	LC-UV
NRC	36.84	4.5	LC-hrMS
PTB	78.9	10.6	LC-hrMS
UME	31.1	2.0	LC-hrMS
NIMT	-	-	-
NMISA	-	-	-

LC-hrMS : *liquid chromatography/high resolution mass spectrometry*

LC-CAD-UV : *liquid chromatography/charged aerosol detector/ultra violet*

ULC-tofMS : *ultra performance chromatography time-of-flight mass spectrometry*

LC-MS/MS : *liquid chromatography/tandem mass spectrometry*

LC-UV : *liquid chromatography/ultra violet*

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The key comparison reference value, x_R , and its associated standard uncertainty, u_R , are computed as explained in p. 30 of the CCQM-K115 Final Report.

$$x_R = 801.8 \text{ mg/g}$$

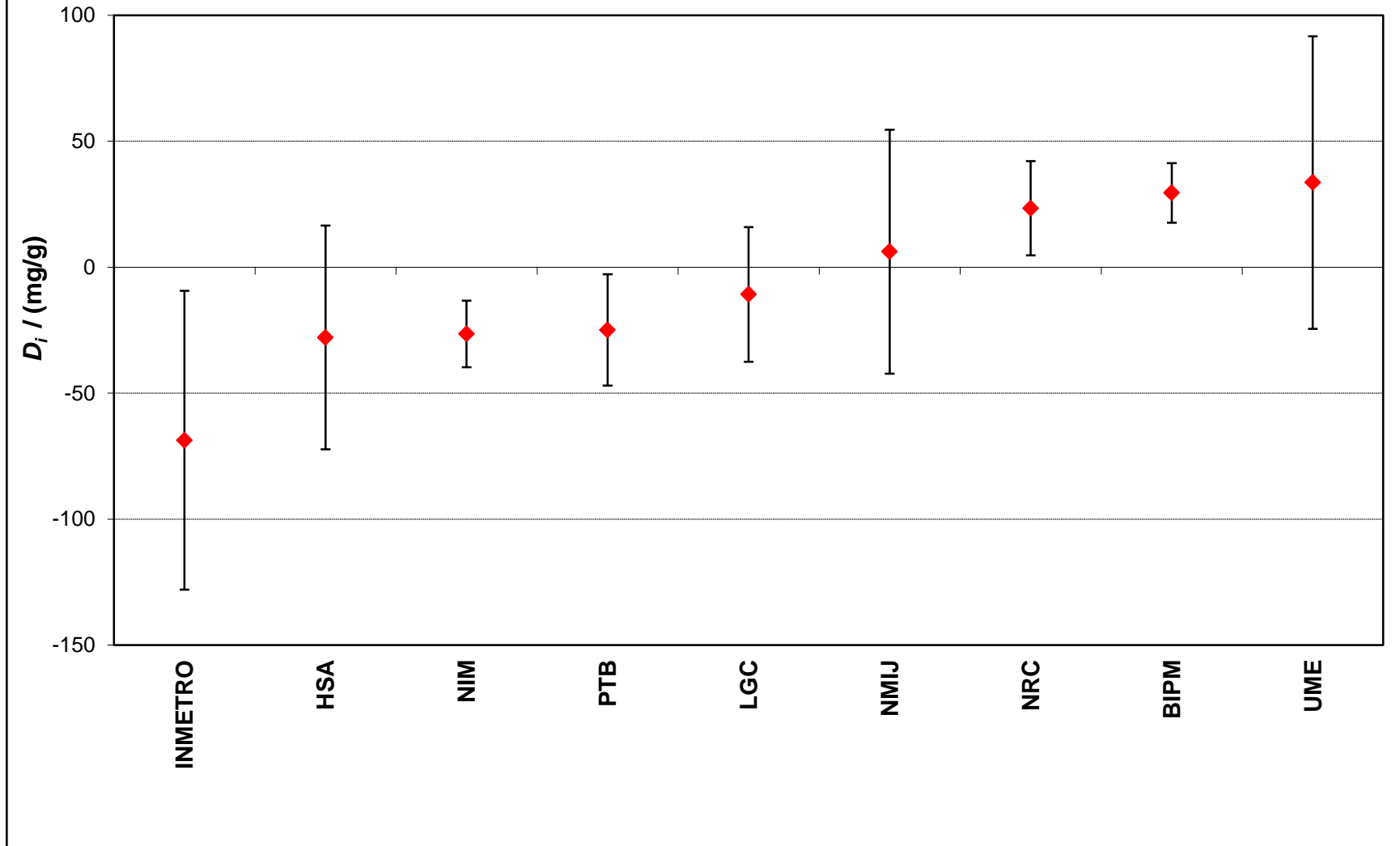
$$u_R = 3.1 \text{ mg/g}$$

The degree of equivalence of each laboratory i with respect to the key comparison reference value is given by a pair of terms: $D_i = (x_i - x_R)$, and its associated expanded uncertainty ($k = 2$) U_i , both expressed in mg/g. U_i is calculated as $[U_{\text{Lab } i}^2 + (2u_R)^2]^{1/2}$.

Lab i ↓	D_i I (mg/g)	U_i
INMETRO	-68.7	59.3
HSA	-27.9	44.4
NIM	-26.5	13.2
PTB	-24.9	22.1
LGC	-10.8	26.7
NMIJ	6.2	48.4
NRC	23.4	18.7
BIPM	29.5	11.9
UME	33.6	58.1

CCQM-K115 Mass fraction of hCP

Degrees of equivalence: D_i and expanded uncertainty U_i ($k = 2$) given in relative terms



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The BIPM result has been adopted as the key comparison reference value, x_R , with its associated standard uncertainty, u_R .

$$x_R = 83.3 \text{ mg/g}$$

$$u_R = 1.5 \text{ mg/g}$$

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

$D_i = (x_i - x_R)$, and its associated expanded uncertainty ($k = 2$) U_i , both expressed in mg/g.

The expanded uncertainty U_i ($k = 2$) is calculated as $[U_{\text{Lab}i}^2 + (2u_R)^2]^{1/2}$.

Lab i ↓	D_i	U_i
	/ (mg/g)	
INMETRO	62.0	16.2
HSA	5.3	23.3
NIM	19.3	8.3
PTB	-4.4	21.4
LGC	-24.1	5.1
NMIJ	-53.2	4.1
NRC	-46.4	9.5
BIPM	0.0	4.3
UME	-52.2	5.5

CCQM-115 Mass fraction of overall peptide-related impurities
Degrees of equivalence: D_i and expanded uncertainty U_i ($k = 2$) given in relative terms

