

Key comparison CCQM-K11 and CCQM-K11.2

MEASURAND: mass fraction of glucose in human serum
Material I (physiological range)

x_i : result of measurement carried out by laboratory i

u_i : combined standard uncertainty of x_i

CCQM-K11

Lab i	x_i / (mg/g)	u_i / (mg/g)
KRISS	0.7753	0.0034
NIST	0.7801	0.0041
PTB	0.7732	0.0025

CCQM-K11.2

Lab i	x_i / (mg/g)	u_i / (mg/g)
CENAM	1.144	0.007
HSA	1.156	0.004
INMETRO	1.140	0.006
KRISS	1.186	0.006
LNE	1.159	0.005
NIM	1.159	0.004
NIMT	1.178	0.015
NMIJ	1.172	0.006
NIST	1.188	0.008
PTB	1.1410	0.007
UME	1.154	0.007
VNIIM	1.169	0.009

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The key comparison reference value, x_R , is calculated as the mean of the participant results:

$$x_R = 0.7762 \text{ mg/g.}$$

The expanded uncertainty, U_R , of x_R , at a 95 % level of confidence, is: $U_R = 0.0088 \text{ mg/g.}$

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 corresponding to a 95% confidence interval, both expressed in mg/g.

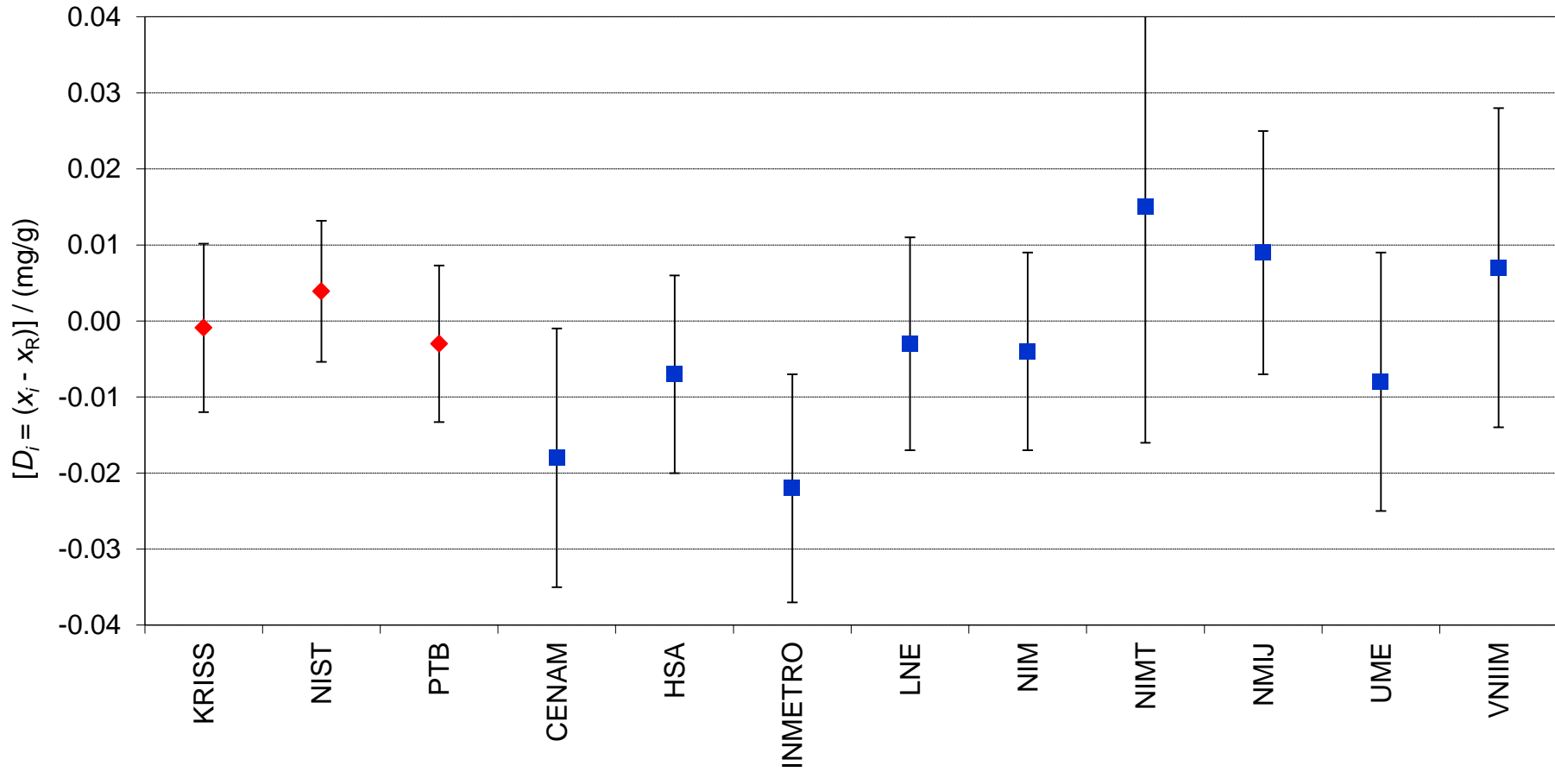
Linking CCQM-K11.2 to CCQM-K11

An independent key comparison reference value was assigned from the mean, standard deviation, and pooled standard uncertainty of the results reported by the three reference laboratories and the nine participants. It was agreed that although all results would be used to calculate the KCRV, degrees of equivalence would not be estimated for the three reference laboratories KRISS, NIST and PTB.

Lab i ↓

	D_i / (mg/g)	U_i / (mg/g)
KRISS	-0.0009	0.011
NIST	0.0039	0.009
PTB	-0.0030	0.010
CENAM	-0.018	0.017
HSA	-0.007	0.013
INMETRO	-0.022	0.015
LNE	-0.003	0.014
NIM	-0.004	0.013
NIMT	0.015	0.031
NMIJ	0.009	0.016
UME	-0.008	0.017
VNIIM	0.007	0.021

CCQM-K11 and CCQM-K11.2 Glucose in human serum
Degrees of equivalence $[D_i]$ and expanded uncertainty (95% confidence interval) U_i



Red diamonds: CQM-K11
 Blue squares: CCQM-K11.2