

### Reference materials no longer listed in the JCTLM database

The following reference materials are no longer listed in the JCTLM database that publishes available higher-order reference materials and reference measurement methods or procedures categorized in three lists:

List I: Certified reference materials and reference measurement methods/procedures for well-defined chemical entities or internationally recognized reference method-defined measurands.

Reference materials and measurement methods/procedures included in this category are those that provide values that are traceable to the SI units; e.g., electrolytes, enzymes, drugs, metabolites and substrates, non-peptide hormones, and some proteins.

List II: Reference materials for which values of the measurands are not SI-traceable but are assigned by or traceable to an internationally agreed upon protocol, e.g., reference materials for blood typing, coagulation factors, microbial serology, nucleic acids, and some proteins.

List II also contains a group of purified substances which, due to the absence of reference measurement procedures, should not be directly used for calibration of routine methods unless commutability is established and/or matrix effect independent internationally recognized standardized value transfer protocols to commutable samples are applied.

List III: Certified Reference Materials for nominal properties.

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
acetone	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	4.37 mg/l		This reference material is not available any more	03 July 2006	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
a1-acid glycoprotein	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.656 g/l	0.0652 g/l to 0.661 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
acid phosphatase (prostatic) (PAP)	acid phosphatase purified from human prostate	BCR-410, prostatic acid phosphatase	JRC (European Commission, Joint Research Centre), Belgium Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Catalytic amount	0.466 µkat/l	0.012 µkat/l Level of confidence 95 %	JRC decided to discontinue the distribution of BCR-410, prostatic acid phosphatase. The reason for this decision was that the sales figures were too low to justify the efforts for monitoring its stability.	08 Sept. 2017	List II
ACTH	lyophilized material	74/555, NIBSC Reference Reagent	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0) 1707 641467 Fax : +44 (0) 1707 641064 standards@nibsc.ac.uk		6.2 U per ampoule		This preparation has been supplied as a reference material for several years and has been found acceptable for this purpose. However, since it has not been validated in any formal accreditation procedure either by WHO or by CE-marking, it can no longer be offered for use as a reference for <i>in vitro</i> diagnostic purposes.	07 June 2006	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
alanine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.51 mmol/l	0.09 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
alanine aminotransferase (ALT)	alanine aminotransferase purified from pig heart	ERM-AD454/IFCC, alanine aminotransferase	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Catalytic amount	3.09 $\mu$ kat/l	0.07 $\mu$ kat/l Level of confidence 95 %	This reference material is not available anymore since it was sold out	20 April 2016	List I
albumin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	39.7 g/l	38.9 g/l to 40.5 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
alkaline phosphatase (ALP)	bovine serum albumin	JC ERM 20327, Lot 003, Japanese Certified Enzyme Reference Material: multi-enzymes	ReCCS (Reference Material Institute for Clinical Chemistry Standards), Japan Phone : +81 (0)44 850 3140 Fax : +81 (0)44 850 3141 h-umemoto@reccs.net	Catalytic amount	419 U/l	-3 U/l to 3 U/l Level of confidence 95 %	JC ERM 20327 Lot 3 reference material is no longer available	17 October 2016	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
$\alpha$ -amylase	bovine serum albumin	JC ERM 20327, Lot 003, Japanese Certified Enzyme Reference Material: multi-enzymes	ReCCS (Reference Material Institute for Clinical Chemistry Standards), Japan Phone : +81 (0)44 850 3140 Fax : +81 (0)44 850 3141 h-umemoto@reccs.net	Catalytic amount	333 U/l	-4 U/l to 4 U/l Level of confidence 95 %	JC ERM 20327 Lot 3 reference material is no longer available	17 October 2016	List I
angiotensin I	lyophilized material	86/536, NIBSC Reference Reagent	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0) 1707 641467 Fax : +44 (0) 1707 641064 standards@nibsc.ac.uk		2.6 $\mu$ g per ampoule		This preparation has been supplied as a reference material for several years and has been found acceptable for this purpose. However, since it has not been validated in any formal accreditation procedure either by WHO or by CE-marking, it can no longer be offered for use as a reference for <i>in vitro</i> diagnostic purposes.	07 June 2006	List II
antithrombin	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.92 IU	3.4 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
antithrombin	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Antigen	0.93 IU	9.2 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
antithrombin	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.93 IU	2.8 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
antithrombin	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Antigen	0.95 IU	2.4 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
apolipoprotein A II	purified apolipoprotein A II	BCR-394, apo A II	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration after reconstitution	0.321 g/l	0.019 g/l Level of confidence 95 %	This reference material is no longer available from IRMM	14 April 2016	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
arginine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.94 mmol/l	0.14 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
L-arginine	L-arginine crystalline material	NMIJ CRM 6017-a, L-arginine	NMIJ (National Metrology Institute of Japan), Japan Phone : +81 29 861 4059 Fax : +81 29 861 4009 nmij-crm-info@m.aist.go.jp	Mass fraction	0.998 kg/kg	0.002 kg/kg Level of confidence 95 %	This reference material is no longer available and has been replaced by NMIJ CRM 6017-b.	06 April 2016	List I
aspartic acid	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.50 mmol/l	0.09 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
bilirubin	bilirubin crystalline material	SRM 916a, biliburin	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	98.3 %	0.3 % Level of confidence 95 %	SRM 916a is out of stock. A renewal material, SRM 916b, is currently in development.	09 April 2014	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
1-butanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	1.58 mg/l		This reference material is not available any more	03 July 2006	List I
2-butanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	0.78 mg/l		This reference material is not available any more	03 July 2006	List I
2-methyl-1-butanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	0.62 mg/l		This reference material is not available any more	03 July 2006	List I
3-methyl-1-butanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	0.66 mg/l		This reference material is not available any more	03 July 2006	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
2-butanone	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	1 mg/l		This reference material is not available any more	03 July 2006	List I
cadmium	bovine blood	ERM CE194, Lyophilised bovine blood	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.2 mg/l	0.05 mg/l Level of confidence 95 %	This reference material is no longer available from IRMM	14 April 2016	List I
calcium	calcium carbonate	SRM 915a, calcium carbonate (clinical standard)	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	99.965 %	0.015 % Level of confidence 95 %	This reference material has been replaced by SRM 915b, which was approved for the JCTLM Database	07 February 2011	List I
calcium	human serum	SRM 956b, electrolytes in frozen human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	1.974 mmol/l to 2.949 mmol/l	0.013 mmol/l to 0.019 mmol/l Level of confidence 95 %	This reference material has been replaced by SRM 956c, which was approved for the JCTLM Database	07 February 2011	List I



Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
total beta-carotene	lyophilized human serum	SRM 968c, Fat-soluble vitamins, carotenoids, and cholesterol in human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	0.171 µg/ml to 0.436 µg/ml	0.017 µg/ml to 0.034 µg/ml Level of confidence 95 %	This material has expired on 30 September 2008 and was sold out.	03 October 2008	List I
trans-beta-carotene	lyophilized human serum	SRM 968c, Fat-soluble vitamins, carotenoids, and cholesterol in human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	0.157 µg/ml to 0.391 µg/ml	0.016 µg/ml to 0.047 µg/ml Level of confidence 95 %	This material has expired on 30 September 2008 and was sold out.	03 October 2008	List I
ceruloplasmin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.205 g/l	0.194 g/l to 0.216 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
chloride	potassium chloride	SRM 918a, potassium chloride (clinical)	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	47.546 %	0.004 % Level of confidence 95 %	This reference material has been replaced by SRM 918b, which was approved for the JCTLM Database	07 February 2011	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
chloride	sodium chloride	SRM 919a, sodium chloride (clinical)	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	99.89 %	0.3 % Level of confidence 95 %	This reference material has been replaced by SRM 919b, which was approved for the JCTLM Database	07 February 2011	List I
cholesterol	cholesterol crystalline material	SRM 911b, cholesterol	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	99.8 %	0.1 % Level of confidence 95 %	This reference material is no longer available from NIST and has been replaced with SRM 911c.	24 June 08	List I
cholesterol	human serum	SRM 968c, fat-soluble vitamins, carotenoids, and cholesterol in human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	3.454 mmol/l to 4.318 mmol/l	0.035 mmol/l to 0.043 mmol/l Level of confidence 95 %	This material has expired on 30 September 2008 and was sold out.	03 October 2008	List I
$\alpha$ 1-anti-chymotrypsin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.245 g/l	0.23 g/l to 0.26 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
coagulation factor II	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.86 IU	3.6 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
coagulation factor II	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.89 IU	4.4 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
coagulation factor IX	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.94 IU	2.9 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
coagulation factor IX	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.94 IU	4.6 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
coagulation factor V	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.87 IU	3.6 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
coagulation factor VII	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	1.05 IU	4.9 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
coagulation factor VII	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.87 IU	6.8 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
coagulation factor VIII	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.66 IU	6.9 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
coagulation factor VIII	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.8 IU	4.7 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
coagulation factor X	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.86 IU	4.1 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
coagulation factor X	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.94 IU	1.5 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
coagulation factor XI	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.88 IU	3.1 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
coagulation factor XIII	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.71 IU	8.6 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
complement C3	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	1.091 g/l	1.064 g/l to 1.118 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
complement C4	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.151 g/l	0.146 g/l to 0.156 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
creatinase kinase (CK)	bovine serum albumin	JC ERM 20327, Lot 003, Japanese Certified Enzyme Reference Material: multi-enzymes	ReCCS (Reference Material Institute for Clinical Chemistry Standards), Japan Phone : +81 (0)44 850 3140 Fax : +81 (0)44 850 3141 h-umemoto@reccs.net	Catalytic amount	420 U/l	-4 U/l to 4 U/l Level of confidence 95 %	JC ERM 20327 Lot 3 reference material is no longer available	17 October 2016	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
creatinine	frozen human serum	NIST SRM 967, Creatinine in frozen human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	7.5 mg/L to 39 mg/L	0.16 mg/L to 0.49 mg/L Level of confidence 95 %	The inventory of the material SRM 967 has been depleted and was superseded by SRM 967a.	09 February 2015	List I
cystine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	1.16 mmol/l	0.06 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
ethanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	1.57 mg/l		This reference material is not available any more	03 July 2006	List I
fibrinogen	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	2.4 mg	3.2 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
fibrinogen	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	2.58 mg	5 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
glucose	glucose crystalline material	DMR 190b, Glucose (purity)	CENAM (Centro Nacional de Metrología), Mexico Phone : +52 (442) 211 05 00 Fax : +52 (442) 211 05 69 gsainz@cenam.mx	Mass fraction	99.01 %	0.14 % Level of confidence 95 %	All the material DMR 910b was sold	01 Nov. 2008	List I
glucose	glucose crystalline material	SRM 917b, D-glucose (dextrose)	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	99.7 %	0.2 % Level of confidence 95 %	SRM 917b is no longer available and has been superseded by SRM 917c.	09 February 2015	List I
glucose	human serum	SRM 965a, glucose in frozen human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	1.918 mmol/l to 16.24 mmol/l	0.02 mmol/l to 0.19 mmol/l Level of confidence 95 %	SRM 965a is no longer available and has been superseded by SRM 965b.	09 February 2015	List I



Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
glutamic acid	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.27 mmol/l	0.1 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
$\gamma$ -glutamyltransferase (GGT)	bovine serum albumin	JC ERM 20327, Lot 003, Japanese Certified Enzyme Reference Material: multi-enzymes	ReCCS (Reference Material Institute for Clinical Chemistry Standards), Japan Phone : +81 (0)44 850 3140 Fax : +81 (0)44 850 3141 h-umemoto@reccs.net	Catalytic amount	149 U/l	-1 U/l to 1 U/l Level of confidence 95%	JC ERM 20327 Lot 3 reference material is no longer available	17 October 2016	List I
glycine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.45 mmol/l	0.08 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
haptoglobin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.893 g/l	0.884 g/l to 0.902 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
histidine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.83 mmol/l	0.11 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
25-hydroxyvitamin D2	human serum	SRM 972, Vitamin D in Human Serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	1.67 ng/g to 25.8 ng/g	0.08 ng/g to 1.9 ng/g Level of confidence 95 %	The inventory of SRM 972 has been depleted, and therefore it is no longer available from NIST. This SRM has now been replaced by SRM 972a Vitamin D Metabolites in Frozen Human Serum.	16 January 2015	List I
25-hydroxyvitamin D3	human serum	SRM 972, Vitamin D in Human Serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	12.0 ng/g to 32.3 ng/g	0.6 ng/g to 0.8 ng/g Level of confidence 95 %	The inventory of SRM 972 has been depleted, and therefore it is no longer available from NIST. This SRM has now been replaced by SRM 972a Vitamin D Metabolites in Frozen Human Serum.	16 January 2015	List I
3-epi-25-hydroxyvitamin D3	human serum	SRM 972, Vitamin D in Human Serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	36.9 ng/g	1.1 ng/g Level of confidence 95 %	The inventory of SRM 972 has been depleted, and therefore it is no longer available from NIST. This SRM has now been replaced by SRM 972a Vitamin D Metabolites in Frozen Human Serum.	16 January 2015	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
immunoglobulin A	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	1.96 g/l	1.92 g/l to 2.00 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
immunoglobulin G	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	9.68 g/l	9.58 g/l to 9.68 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
immunoglobulin M	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.797 g/l	0.774 g/l to 0.82 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
interleukin 2 soluble receptor	lyophilised material	97/600, NIBSC Reference Preparation, Interleukin-2 Soluble Receptor, human	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0) 1707 641467 Fax : +44 (0) 1707 641064 standards@nibsc.ac.uk		1000 U per ampoule	no certified range	This preparation has been supplied as a reference material for several years and has been found acceptable for this purpose. However, since it has not been validated in any formal accreditation procedure either by WHO or by CE-marking, it can no longer be offered for use as a reference for <i>in vitro</i> diagnostic purposes.	07 June 2006	List II
isobutanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	0.84 mg/l		This reference material is not available any more	03 July 2006	List I
isoleucine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.39 mmol/l	0.07 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
lactate dehydrogenase (LDH)	bovine serum albumin	JC ERM 20327, Lot 003, Japanese Certified Enzyme Reference Material: multi-enzymes	ReCCS (Reference Material Institute for Clinical Chemistry Standards), Japan Phone : +81 (0)44 850 3140 Fax : +81 (0)44 850 3141 h-umemoto@reccs.net	Catalytic amount	398 U/l	-5 U/l to 5 U/l Level of confidence 95 %	JC ERM 20327 Lot 3 reference material is no longer available	17 October 2016	List I
lactate dehydrogenase (LDH)	lactate dehydrogenase purified from human erythrocytes	ERM-AD453/IFCC, lactate dehydrogenase	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Catalytic amount	8.37 µkat/l	0.12 µkat/l Level of confidence 95 %	This reference material is no longer available from IRMM	14 April 2016	List I
lead	bovine blood	ERM CE194, Lyophilised bovine blood	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	126 mg/l	4 mg/l Level of confidence 95 %	This reference material is no longer available from IRMM	14 April 2016	List I
lead	bovine blood	SRM 955b, Lead in bovine blood	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	4.04 µg/dl to 39.36 µg/dl	0.15 µg/dl to 0.36 µg/dl Level of confidence 95 %	SRM 955b is no longer available and has been replaced by SRM 955c, which was approved for the JCTLM database	05 March 2009	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
leucine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.48 mmol/l	0.09 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
lithium	human serum	SRM 956b, electrolytes in frozen human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	0.46 mmol/l to 1.92 mmol/l	0.007 mmol/l to 0.027 mmol/l Level of confidence 95 %	This reference material has been replaced by SRM 956c, which was approved for the JCTLM Database	07 February 2011	List I
lysine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.47 mmol/l	0.1 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
a2-macroglobulin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	1.64 g/l	1.59 g/l to 1.69 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
magnesium	human serum	SRM 956b, electrolytes in frozen human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	0.458 mmol/l to 1.522 mmol/l	0.006 mmol/l to 0.02 mmol/l Level of confidence 95 %	This reference material has been replaced by SRM 956c, which was approved for the JCTLM Database	07 February 2011	List I
magnesium	magnesium gluconate dihydrate	SRM 929, magnesium gluconate	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	5.403 %	0.022 % Level of confidence 95 %	This reference material has been replaced by SRM 929a, which was approved for the JCTLM Database	07 February 2011	List I
methanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	9.01 mg/l		This reference material is not available any more	03 July 2006	List I
methionine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.43 mmol/l	0.09 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
mix of prothrombin fragments	aqueous solution	IRMM/IFCC-492, mix of equal quantities of prothrombin gene fragments wildtype G20210/ mutant G20210A	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Identity	not applicable	probability of error $p < 3 \times 10^{-6}$	This reference material is no longer available from IRMM	14 April 2016	List III
C-peptide	lyophilized phosphate buffer saline	NMIJ CRM 6901-a, C-peptide	NMIJ (National Metrology Institute of Japan), Japan Phone : +81 29 861 4059 Fax : +81 29 861 4009 nmij-crm-info@m.aist.go.jp	Mass concentration of C-peptide after reconstitution	80.7 mg/L	6.2 % Level of confidence 95 %	This reference material is no longer available and has been replaced by NMIJ CRM 6901-b.	09 February 2015	List I
total C-peptide	lyophilized phosphate buffer saline	NMIJ CRM 6901-a, C-peptide	NMIJ (National Metrology Institute of Japan), Japan Phone : +81 29 861 4059 Fax : +81 29 861 4009 nmij-crm-info@m.aist.go.jp	Mass concentration of total C-peptide after reconstitution	81.7 mg/L	6.2 % Level of confidence 95 %	This reference material is no longer available and has been replaced by NMIJ CRM 6901-b.	09 February 2015	List I
phenylalanine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.44 mmol/l	0.08 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I



Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
potassium	human serum	SRM 956b, electrolytes in frozen human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	1.987 mmol/l to 5.973 mmol/l	0.014 mmol/l to 0.045 mmol/l Level of confidence 95 %	This reference material has been replaced by SRM 956c, which was approved for the JCTLM Database	07 February 2011	List I
potassium	potassium chloride	SRM 918a, potassium chloride (clinical)	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	52.435 %	0.0044 % Level of confidence 95 %	This reference material has been replaced by SRM 918b, which was approved for the JCTLM Database	07 February 2011	List I
proline	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.44 mmol/l	0.09 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
1-propanol	human serum	ME 90701, congener alcohols in human serum	LGC (LGC Limited), United Kingdom Phone : +44 (0)20 8943 8480 Fax : +44 (0)20 8943 7554 uksales@lgcstandards.com	Mass concentration	1.14 mg/l		This reference material is not available any more	03 July 2006	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
protein C	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.89 IU	4.2 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
protein C	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.96 IU	3.2 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
protein C	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Antigen	0.97 IU	3.3 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
protein C	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Antigen	0.89 IU	2.2 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
protein S	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Total antigen	0.85 IU	8.1 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
protein S	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Free antigen	0.88 IU	4.5 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
protein S	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.78 IU	4.9 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
protein S	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Total antigen	0.88 IU	4.4 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
protein S	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Free antigen	0.92 IU	7.7 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
protein S	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Functional activity	0.73 IU	6.8 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
prothrombin fragment	aqueous solution	IRMM/IFCC-490, prothrombin gene fragment wildtype G20210	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Identity	not applicable	probability of error $p < 3 \times 10^{-6}$	This reference material is no longer available from IRMM	14 April 2016	List III
prothrombin fragment	aqueous solution	IRMM/IFCC-491, prothrombin gene fragment mutant G20210A	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Identity	not applicable	probability of error $p < 3 \times 10^{-6}$	This reference material is no longer available from IRMM	14 April 2016	List III

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
C-reactive protein (CRP)	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.0392 g/l	0.0373 g/l to 0.0407 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
C-reactive protein (CRP)	human serum	ERM-DA472/IFCC, human serum	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	41.8 mg/L	2.5 mg/L Level of confidence of about 95 %	This material is not available anymore since it was sold out	04 April 2012	List I
C-reactive protein (CRP)	aqueous solution	NMIJ CRM 6201-b, C-reactive protein solution	NMIJ (National Metrology Institute of Japan), Japan Phone : +81 29 861 4059 Fax : +81 29 861 4009 nmij-crm-info@m.aist.go.jp	Amount-of-substance content	40.0 µmol/kg	1.6 µmol/kg Level of confidence 95 %	NMIJ CRM 6201-b reference material reached the expiry date of 30 Septembre 2017, and is no longer available. NMIJ is preparing a new batch.	30 Sep. 2017	List I
retinol	lyophilized human serum	SRM 968c, Fat-soluble vitamins, carotenoids, and cholesterol in human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	0.484 µg/ml to 0.841 µg/ml	0.012 µg/ml to 0.027 µg/ml Level of confidence 95 %	This material has expired on 30 September 2008 and was sold out.	03 October 2008	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
serine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.43 mmol/l	0.09 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
sodium	human serum	SRM 956b, electrolytes in frozen human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	120.1 mmol/l to 160.7 mmol/l	1.4 mmol/l to 1.8 mmol/l Level of confidence 95 %	This reference material has been replaced by SRM 956c, which was approved for the JCTLM Database	07 February 2011	List I
sodium	sodium chloride	SRM 919a, sodium chloride (clinical)	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass fraction	99.89 %	0.3 % Level of confidence 95 %	This reference material has been replaced by SRM 919b, which was approved for the JCTLM Database	07 February 2011	List I
threonine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.39 mmol/l	0.08 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
thromboplastin	bovine brain isolate	BCR-148, Lyophilised thromboplastin bovine	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu		slope: 1.011; intercept:-0.321; slope and intercept of calibration line relative to WHO IRO 67/40	slope: 0.015; intercept: 0.025; slope and intercept of calibration line relative to WHO IRP 67/40	This reference material is no longer available from IRMM	14 April 2016	List II
alpha-tocopherol	lyophilized human serum	SRM 968c, Fat-soluble vitamins, carotenoids, and cholesterol in human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	7.47 µg/ml to 16.79 µg/ml	0.47 µg/ml to 0.76 µg/ml Level of confidence 95 %	This material has expired on 30 September 2008 and was sold out.	03 October 2008	List I
delta-tocopherol	lyophilized human serum	SRM 968c, Fat-soluble vitamins, carotenoids, and cholesterol in human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	0.131 µg/ml to 0.527 µg/ml	0.018 µg/ml to 0.071 µg/ml Level of confidence 95 %	This material has expired on 30 September 2008 and was sold out.	03 October 2008	List I
gamma-tocopherol	lyophilized human serum	SRM 968c, Fat-soluble vitamins, carotenoids, and cholesterol in human serum	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Mass concentration	1.56 µg/ml to 3.9 µg/ml	0.1 µg/ml to 0.13 µg/ml Level of confidence 95 %	This material has expired on 30 September 2008 and was sold out.	03 October 2008	List I

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
transferrin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	2.45 g/l	2.39 g/l to 2.51 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
transthyretin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	0.243 g/l	0.225 g/l to 0.261 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
a1-anti-trypsin	human serum	BCR-470, serum proteins	JRC (European Commission, Joint Research Centre), European Union Phone : +32 (0) 14 571 705 Fax : +32 (0) 14 590 406 jrc-rm-distribution@ec.europa.eu	Mass concentration	1.206 g/l	1.195 g/l to 1.217 g/l Level of confidence 95 %	This material is no longer for sale	10 February 2009	List I
tyrosine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.47 mmol/l	0.09 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I



Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
valine	aqueous solution	SRM 2389, amino acids in 0.1 mol/l hydrochloric acid	NIST (National Institute of Standards and Technology), United States Phone : +1 301 975 6776 Fax : +1 301 948 3730 srminfo@nist.gov	Amount-of-substance concentration	2.44 mmol/l	0.08 mmol/l Level of confidence 95 %	This reference material is no longer available and has been replaced by SRM 2389a	09 March 2012	List I
von Willebrand factor	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Ristocetin Cofactor activity	0.71 IU	13.8 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
von Willebrand factor	human plasma	Lot#2, SSC/ISTH	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Antigen	0.95 IU	7.9 % Level of confidence 95 %	The material has been de-listed for two reasons: -upon reaching the expiry date of "end June 2006" and -exhaustion of stocks	03 July 2006	List II
von Willebrand factor	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Ristocetin Cofactor activity	0.86 IU	4.9 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II

Analyte	Matrix/Material	Name of the reference material	Producer	Quantity	Range of certified values in reference material	Range of expanded uncertainties for certified value	Comment(s) from RM producer	Date removed from JCTLM lists	Previously listed in
von Willebrand factor	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Antigen	1.06 IU	5.7 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II
von Willebrand factor	human plasma	Lot #3, SSC	NIBSC (National Institute for Biological Standards and Control), United Kingdom Phone : +44 (0)1707 641318 Fax : +44 (0)1707 647227 thubbard@nibsc.ac.uk	Collagen Binding	1.07 IU	11.2 % Level of confidence 95 %	The material is no longer available because the stocks have been exhausted	16 Dec. 2014	List II