Name of accreditation program	ASNITE Accreditation Program
Accreditation No. and additional information	ASNITE 0001 R
Date of initial accreditation	2003-10-09
Date of latest accreditation	2018-03-26
Name and address of Accredited organization	National Institute of Advanced Industrial Science and Technology National Metrology Institute of Japan 1-1-1 Umezono, Tsukuba, Ibaraki 305-8563 JAPAN JCN 7010005005425
Inquiry point	Chemical Standards Tel: +81-29-861-4059 Fax: +81-29-861-4009
Remarks	This accredited organization meets the requirements of ISO Guide 34 : 2009 as a reference material producer.

* JCN : Japan Corporate Number

（Attachment）

Application Category: Chemical Reference Material
RM/CRM: CRM

Subcategory	Measurand		Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Standard gases	high purity nitrogen monoxide (NO)		0.99 mol/mol to 1 mol/mol	10 mmol/mol to 0.1 mmol/mol	2017-01-20
	impurities in NO	NO_2	10 µmol/mol to 10000 µmol/mol	10 % to 2.5 % (relative)	
		N_2	11 µmol/mol to 5000 µmol/mol	5 % to 2.5 % (relative)	
		O_2	11 µmol/mol to 5000 µmol/mol	5 % to 2.5 % (relative)	
		N_2O	7.5 µmol/mol to 11000 µmol/mol	10 % to 0.5 % (relative)	
		CH_4	2 µmol/mol to 11000 µmol/mol	10 % to 0.5 % (relative)	
		C_3H_8	2 µmol/mol to 15000 µmol/mol	10 % to 0.5 % (relative)	
	high purity sulfur dioxide (SO_2)		0.99 mol/mol to 1 mol/mol	10 mmol/mol to 0.1 mmol/mol	
	impurities in SO_2	CO_2	11 µmol/mol to 15000 µmol/mol	5 % to 0.5 % (relative)	
		N_2	11 µmol/mol to 15000 µmol/mol	5 % to 0.5 % (relative)	
		O_2	11 µmol/mol to 5000 µmol/mol	5 % to 0.5 % (relative)	
		CH_4	2 µmol/mol to 11000 µmol/mol	10 % to 0.5 % (relative)	
		C_3H_8	2 µmol/mol to 15000 µmol/mol	10 % to 0.5 % (relative)	
	high purity methane (CH_4)		0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.0005 mmol/mol	
	impurities in CH_4	N_2	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		O_2	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		Ar	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		CO	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		CO_2	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		C_2H_6	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		H_2	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		hexane	0.01 µmol/mol to 180 µmol/mol	100 % to 0.6 % (relative)	
		H_2O	0.5 µmol/mol to 100 µmol/mol	70 % to 30 % (relative)	

Subcategory	Measurand		Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Standard gases	high purity propane (C_3H_8)		0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.001 mmol/mol	2017-01-20
	impurities in C_3H_8	N_2	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		O_2	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		Ar	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		CO_2	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		CH_4	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		C_2H_6	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		propylene	1 µmol/mol to 100 µmol/mol	20 % to 2 % (relative)	
		butane	1 µmol/mol to 100 µmol/mol	20 % to 2 % (relative)	
		isobutane	1 µmol/mol to 100 µmol/mol	20 % to 2 % (relative)	
		H_2O	0.5 µmol/mol to 100 µmol/mol	70 % to 30 % (relative)	
	high purity carbon dioxide (CO_2)		0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.002 mmol/mol	
	impurities in CO_2	N_2	0.1 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		O_2	0.1 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		H_2	2 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		He	2 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		CH_4	0.01 µmol/mol to 1 µmol/mol	90 % to 1 % (relative)	
		C_3H_8	0.01 µmol/mol to 1 µmol/mol	90 % to 1 % (relative)	
		CO	0.1 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		H_2O	0.5 µmol/mol to 100 µmol/mol	70 % to 30 % (relative)	

Subcategory	Measurand		Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Standard gases	high purity carbon monoxide (CO)		0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.02 mmol/mol	2017-01-20
	impurities in CO	N_2	5 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		O_2	5 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		H_2	5 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		He	5 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		CH_4	5 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		CO_2	5 µmol/mol to 100 µmol/mol	30 % to 0.5 % (relative)	
		H_2O	0.5 µmol/mol to 100 µmol/mol	70 % to 30 % (relative)	
	high purity oxygen (O_2)		0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.0009 mmol/mol	
	impurities in O_2	Ar	0.5 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		N_2	0.5 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		CH_4	0.05 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)	
		CO	0.06 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)	
		CO_2	0.05 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)	
		N_2O	0.05 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)	
		H_2O	0.5 µmol/mol to 100 µmol/mol	70 % to 30 % (relative)	
	high purity vinyl chloride		0.99 mol/mol to 1 mol/mol	5 mmol/mol to 0.01 mmol/mol	
	impurities in vinyl chloride	N_2	5 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		O_2	5 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		Ar	5 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		CH_4	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		CO_2	5 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
		methyl chloride	1 µmol/mol to 200 µmol/mol	30 % to 2 % (relative)	
		ethyl chloride	1 µmol/mol to 100 µmol/mol	20 % to 2 % (relative)	
		acetylene	1 µmol/mol to 100 µmol/mol	20 % to 2 % (relative)	
		H_2O	0.5 µmol/mol to 100 µmol/mol	70 % to 30 % (relative)	

Subcategory	Measurand		Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Standard gases	high purity 1,3-butadiene		0.98 mol/mol to 1 mol/mol	20 mmol/mol to 1 mmol/mol	2017-01-20
	impurities in 1,3-butadiene	N_2	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)	
		O_2	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)	
		Ar	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)	
		CO_2	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)	
		butane	1 µmol/mol to 500 µmol/mol	20 % to 2 % (relative)	
		isobutane	1 µmol/mol to 500 µmol/mol	20 % to 2 % (relative)	
		1-butene	1 µmol/mol to 1000 µmol/mol	20 % to 2 % (relative)	
		trans -2-butene	1 µmol/mol to 7000 µmol/mol	20 % to 2 % (relative)	
		cis -2-butene	1 µmol/mol to 8000 µmol/mol	20 % to 2 % (relative)	
		isobutylene	1 µmol/mol to 1000 µmol/mol	20 % to 2 % (relative)	
		4-vinyl-1-cyclohexene (1,3-butadiene dimer)	1 µmol/mol to 1500 µmol/mol	60 % to 30 % (relative)	
		H_2O	0.5 µmol/mol to 100 µmol/mol	70 % to 30 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Standard gases	O_2/N_2	5 µmol/mol to 5 mmol/mol	1 % to 0.1 % (relative)	2017-01-20
	O_2/He	11 µmol/mol to 0.015 mol/mol	5 % to 0.5 % (relative)	
	N_2/He	11 µmol/mol to 0.015 mol/mol	5 % to 0.5 % (relative)	
	CO_2/N_2 or CO_2/air	11 µmol/mol to 99 µmol/mol	10 % to 1 % (relative)	
	CO_2/N_2 or CO_2/air	99 µmol/mol to 349 µmol/mol	1 % to 1 % (relative)	
	CO_2/N_2 or CO_2/air	350 µmol/mol to 0.07 mol/mol	0.2 % to 0.1 % (relative)	
	CO_2/N_2	0.16 mol/mol to 0.3 mol/mol	0.1 % to 0.1 % (relative)	
	CO_2/He	11 µmol/mol to 0.015 mol/mol	5 % to 0.5 % (relative)	
	CO/N_2	1 µmol/mol to 3 µmol/mol	0.25 % to 0.25 % (relative)	
	CO/air	1 µmol/mol to 100 µmol/mol	0.25 % to 0.25 % (relative)	
	CO/air	50 nmol/mol to 1 µmol/mol	5 % to 0.25 % (relative)	
	NO_2/air	10 µmol/mol to 0.01 mol/mol	10 % to 2.5 % (relative)	
	N_2O/N_2	7.5 µmol/mol to 0.02 mol/mol	1 % to 0.5 % (relative)	
	N_2O/Air	20 µmol/mol to 300 µmol/mol	0.1 % to 0.1 % (relative)	
	N_2O/Air	200 nmol/mol to 20 µmol/mol	0.2 % to 0.1 % (relative)	
	N_2O/He	7.5 µmol/mol to 0.011 mol/mol	10 % to 0.5 % (relative)	
	CH_4/N_2	1 µmol/mol to 0.011 mol/mol	1 % to 0.1 % (relative)	
	CH_4/Air	1700 nmol/mol to 2500 nmol/mol	1.3 nmol/mol to 1.3 nmol/mol	
	CH_4/He	2 µmol/mol to 0.011 mol/mol	10 % to 0.5 % (relative)	
	C_3H_8/N_2	0.015 mol/mol to 0.1 mol/mol	0.1 % to 0.1 % (relative)	
	C_3H_8/N_2	2 µmol/mol to 150 µmol/mol	10 % to 1 % (relative)	
	C_3H_8/He	2 µmol/mol to 0.015 mol/mol	10 % to 0.5 % (relative)	
	CH_4＋C_3H_8/N_2 and CH_4＋C_3H_8/He	CH_4: 2 µmol/mol to 0.015 mol/mol C_3H_8: 2 µmol/mol to 0.015 mol/mol	CH_4: 10 % to 0.5 % (relative) C_3H_8 : 10 % to 0.5 % (relative)	
	$O_2+N_2O+CO_2/N_2$	O_2: 11 µmol/mol to 0.015 mol/mol N_2O: 7.5 µmol/mol to 0.01 mol/mol CO_2: 11 µmol/mol to 0.015 mol/mol	O_2: 5 % to 0.5 % (relative) N_2O: 10 % to 0.5 % (relative) CO_2: 5 % to 0.5 % (relative)	
	$O_2+N_2+N_2O+CO_2$/He	O_2: 11 µmol/mol to 0.015 mol/mol N_2: 11 µmol/mol to 0.015 mol/mol N_2O: 7.5 µmol/mol to 0.015 mol/mol CO_2: 7.5 µmol/mol to 0.015 mol/mol	O_2: 5 % to 0.5 % (relative) N_2: 5 % to 0.5 % (relative) N_2O: 10 % to 0.5 % (relative) CO_2: 5 % to 0.5 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Standard gases	CF_4/N_2	10 µmol/mol to 0.1 mol/mol	1.5 % to 0.5 % (relative)	2017-01-20
	SF_6/N_2	10 µmol/mol to 0.1 mol/mol	1.5 % to 0.5 % (relative)	
	C_2F_6/N_2	10 µmol/mol to 0.1 mol/mol	1.5 % to 0.5 % (relative)	
	CF_4+SF_6/N_2	CF_4: 10 µmol/mol to 0.1 mol/mol SF_6: 10 µmol/mol to 0.1 mol/mol	CF_4: 1.5 % to 0.5 % (relative) SF_6: 1.5 % to 0.5 % (relative)	
	$CF_4+C_2F_6/N_2$	CF_4: 10 µmol/mol to 0.1 mol/mol C_2F_6: 10 µmol/mol to 0.1 mol/mol	CF_4: 1.5 % to 0.5 % (relative) C_2F_6: 1.5 % to 0.5 % (relative)	
	$CF_4+C_2F_6+SF_6/N_2$	CF_4: 10 µmol/mol to 0.1 mol/mol C_2F_6: 10 µmol/mol to 0.1 mol/mol SF_6: 10 µmol/mol to 0.1 mol/mol	CF_4: 1.5 % to 0.5 % (relative) C_2F_6: 1.5 % to 0.5 % (relative) SF_6: 1.5 % to 0.5 % (relative)	
	hexane/N_2, hexane/CH_4	20 µmol/mol to 500 µmol/mol	2 % to 0.3 % (relative)	
	$N_2+CO_2+C_3H_8/CH_4$	N_2: 0.005 mol/mol to 0.02 mol/mol CO_2: 0.005 mol/mol to 0.02 mol/mol C_3H_8: 0.02 mol/mol to 0.1 mol/mol	N_2: 0.2 mmol/mol to 0.2 mmol/mol CO_2: 0.1 mmol/mol to 0.1 mmol/mol C_3H_8: 0.3 mmol/mol to 0.3 mmol/mol	
	synthetic natural gas	N_2: 5 mmol/mol to 200 mmol/mol CO_2: 5 mmol/mol to 100 mmol/mol C_2H_6: 2 mmol/mol to 200 mmol/mol C_3H_8: 1 mmol/mol to 100 mmol/mol *n* -C_4H_{10}: 0.5 mmol/mol to 10 mmol/mol *iso* -C_4H_{10}: 0.5 mmol/mol to 10 mmol/mol CH_4: 600 mmol/mol to 980 mmol/mol	N_2: 0.5 % to 0.3 % (relative) CO_2: 0.6 % to 0.4 % (relative) C_2H_4: 0.5 % to 0.3 % (relative) C_3H_8: 0.5 % to 0.3 % (relative) *n* -C_4H_{10}: 0.5 % to 0.3 % (relative) *iso* -C_4H_{10}: 0.5 % to 0.3 % (relative) CH_4: 0.5 % to 0.3 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Inorganic standard solution	Mg	0.8 g/kg to 1.2 g/kg	0.16 % (relative)	2017-01-20
	Al	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Cu	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Zn	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Fe	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ni	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Sr	0.8 g/kg to 1.2 g/kg	0.08 % (relative)	
	V	0.8 g/kg to 1.2 g/kg	0.08 % (relative)	
	Mn	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Mo	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Co	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Cd	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ga	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	In	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Pb	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Bi	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ba	0.8 g/kg to 1.2 g/kg	0.16 % (relative)	
	Cr	0.8 g/kg to 1.2 g/kg	0.06 % (relative)	
	Tl	0.8 g/kg to 1.2 g/kg	0.28 % (relative)	
	Sn	0.8 g/kg to 1.2 g/kg	0.14 % (relative)	
	Na	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	K	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Li	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Rb	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Cs	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	As	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Sb	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Be	0.8 g/kg to 1.2 g/kg	0.18 % (relative)	
	Zr	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ag	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ca	0.8 g/kg to 1.2 g/kg	0.10 % (relative)	
	Hg	0.8 g/kg to 1.2 g/kg	0.10 % (relative)	
	Se	0.8 g/kg to 1.2 g/kg	0.12 % (relative)	
	B	0.8 g/kg to 1.2 g/kg	0.12 % (relative)	
	Te	0.8 g/kg to 1.2 g/kg	0.13 % (relative)	
	Si	0.8 g/kg to 1.2 g/kg	0.28 % (relative)	
	chloride ion	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	nitrite ion	0.8 g/kg to 1.2 g/kg	0.18 % (relative)	
	nitrate ion	0.8 g/kg to 1.2 g/kg	0.15 % (relative)	
	phosphate ion	0.8 g/kg to 1.2 g/kg	0.18 % (relative)	
	bromide ion	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	iodide ion	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	sulfate ion	0.8 g/kg to 1.2 g/kg	0.12 % (relative)	
	cyanide ion	0.8 g/kg to 1.2 g/kg	1.1 % (relative)	
	chlorate ion	0.8 g/kg to 1.2 g/kg	0.15 % (relative)	
	bromate ion	1.6 g/kg to 2.4 g/kg	0.14 % (relative)	
	total organic carbon	0.8 g/kg to 1.2 g/kg	0.16 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Inorganic standard solution (Isotopic standard)	$^{206}Pb/^{204}Pb$ (Isotopic rate)	14 mol/mol to 22 mol/mol	0.025 % (relative)	2017-01-20
	$^{207}Pb/^{204}Pb$ (Isotopic rate)	13 mol/mol to 17 mol/mol	0.023 % (relative)	
	$^{208}Pb/^{204}Pb$ (Isotopic rate)	36 mol/mol to 40 mol/mol	0.023 % (relative)	
	$^{208}Pb/^{206}Pb$ (Isotopic rate)	1.8 mol/mol to 2.2 mol/mol	0.0062 % (relative)	
	$^{207}Pb/^{206}Pb$ (Isotopic rate)	0.8 mol/mol to 1.0 mol/mol	0.0042 % (relative)	
	^{204}Pb (Isotopic abundance)	0.012 mol/mol to 0.015 mol/mol	0.029 % (relative)	
	^{206}Pb (Isotopic abundance)	0.24 mol/mol to 0.28 mol/mol	0.0036 % (relative)	
	^{207}Pb (Isotopic abundance)	0.20 mol/mol to 0.23 mol/mol	0.0047% (relative)	
	^{208}Pb (Isotopic abundance)	0.51 mol/mol to 0.53 mol/mol	0.0031 % (relative)	
	Pb (molar mass)	207.1 g/mol to 207.3 g/mol	0.000014 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
pH standard solution	pH	1.18 to 10.51	0.003	2017-01-20
Electrolytic conductivity satandard solution	Eiectrolytic conductivity	0.05 S/m to 15 S/m	0.15 % to 0.48 % (relative)	
High purity inorganic material (Potassium hydrogen phthalate)	acid	99.9 % to 100.1 % (mass fraction as potassium hydrogen phthalate)	0.012 % to 0.015 %	
High purity inorganic material (Potassium dichromate)	oxidant	99.9 % to 100.1 % (mass fraction as potassium dichromate)	0.010 % to 0.012 %	
High purity inorganic material (Arsenic(Ⅲ) trioxide)	reductant	99.9 % to 100.1 % (mass fraction as arsenic(Ⅲ) trioxide)	0.014 % to 0.020 %	
High purity inorganic material (Sodium carbonate)	base	99.9 % to 100.1 % (mass fraction as sodium carbonate)	0.01 % to 0.02 %	
High purity inorganic material (Potassium iodate)	oxidant	99.9 % to 100.1 % (mass fraction as potassium iodate)	0.014 % to 0.020 %	
High purity inorganic material (Sodium oxalate)	reductant	99.9 % to 100.1 % (mass fraction as sodium oxalate)	0.023 % to 0.025 %	
Heavy metals in polymer	Cd	5 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Cr	10 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Hg	10 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Pb	10 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Br	50 mg/kg to 10000 mg/kg	2.0 % to 5.0 % (relative)	
Minor elements in metals and alloys (lead-free solder)	Pb	100 mg/kg to 2000 mg/kg	0.8 % to 1.6 % (relative)	
	Ag	2.8 % to 3.2 % (mass fraction)	0.8 % to 1.6 % (relative)	
	Cu	0.3 % to 0.7 % (mass fraction)	0.5 % to 1.0 % (relative)	
High purity inorganic material (Sodium chloride)	Cl	99.9 % to 100.1 % (mass fraction as sodium chloride)	0.03 % to 0.05 %	
High purity inorganic material (Ammonium chloride)	NH3	99.9 % to 100.1 % (mass fraction as ammonium chloride)	0.034 % to 0.070 %	
	Cl	99.9 % to 100.1 % (mass fraction as ammonium chloride)	0.054% to 0.080 %	
High purity inorganic material (Amidosulfuric acid)	acid	99.9 % to 100.1 % (mass fraction as amidosulfuric acid)	0.008 % to 0.012 %	
	N	99.9 % to 100.1 % (mass fraction as amidosulfuric acid)	0.025 % to 0.040 %	
Hydrochloric acid	acid	0.05 mol/kg to 2 mol/kg	0.016 % to 0.027 % (relative)	
High purity inorganic material (Tris(hydroxymethyl) aminomethane)	base	99.8 % to 100.2 % (mass fraction as tris(hydroxylmethyl)aminomethane)	0.026 %	
High purity inorganic material (Calcium carbonate)	Ca	99.5 % to 100.5 % (mass fraction as calcium carbonate)	0.030 %	
High purity inorganic material (Zinc)	Zn	99.5 % to 100.0 % (mass fraction as zinc)	0.008 %	
	Zn (Molar mass)	65.36 g/mol to 65.40 g/mol	0.0018 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
High purity organic materials	ethanol	0.998 mol/mol to 1 mol/mol	0.002 mol/mol to 0.0004 mol/mol	2017-01-20
	toluene	0.998 mol/mol to 1 mol/mol	0.003 mol/mol to 0.00006 mol/mol	
	1,2-dichloroethane	0.998 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0001 mol/mol	
	benzene	0.998 mol/mol to 1 mol/mol	0.001 mol/mol to 0.00002 mol/mol	
	o- xylene	0.998 mol/mol to 1 mol/mol	0.001 mol/mol to 0.00002 mol/mol	
	ethylbenzene	0.998 mol/mol to 1 mol/mol	0.0002 mol/mol to 0.002 mol/mol	
	cholesterol	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	m -xylene	0.997 mol/mol to 1 mol/mol	0.001 mol/mol to 0.00015 mol/mol	
	diethyl phthalate	0.997 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	chloroform	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	p -xylene	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0001 mol/mol	
	bromoform	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	bromodichloromethane	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	bisphenol A	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0006 mol/mol	
	dibromochloromethane	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	trans -1,2-dichloroethylene	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	trichloroethylene	0.995 mol/mol to 1 mol/mol	0.002 mol/mol	
	tetrachloroethylene	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	1,1,1-trichloroethylene	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0004 mol/mol	
	cis -1,2-dichloroethylene	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0007 mol/mol	
	cis -1,3-dichloropropene	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.003 mol/mol	
	1,4-dichlorobenzene	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0003 mol/mol	
	styrene	0.99 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.001 kg/kg	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
High purity organic materials	dichloromethane	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	2017-01-20
	tetrachloromethane	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	1,1-dichloroethylene	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	1,1,2-trichloroethane	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	trans-1,3-dichloropropene	0.97 mol/mol to 1 mol/mol	0.005 mol/mol to 0.003 mol/mol	
	1,2-dichloropropane	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.003 mol/mol	
	acrylonitrile	0.99 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.0008 kg/kg	
	acetoaldehyde	0.99 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.003 kg/kg	
	17β-estradiol	0.96 kg/kg to 1.00 kg/kg	0.005 kg/kg to 0.003 kg/kg	
	progesterone	0.98 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.001 kg/kg	
	testosterone	0.98 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.001 kg/kg	
	sulfur in organic materials (as sulfur)	0.2 kg/kg to 0.4 kg/kg	0.00006 kg/kg to 0.0004 kg/kg	
	dibutyl sulfide	0.995 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0001 kg/kg	
	1,4-dioxane	0.998 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0001 kg/kg	
	tert-butylmethylether	0.998 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0003 kg/kg	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
High purity organic materials	di-*n* -butyl phthalate	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	2017-01-20
	di-2-ethylhexyl phthalate	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	di-*n* -propyl phthalate	0.98 kg/kg to 1 kg/kg	0.0006 kg/kg to 0.0002 kg/kg	
	di-*n* -pentyl phthalate	0.97 kg/kg to 1 kg/kg	0.006 kg/kg to 0.0002 kg/kg	
	di-*n* -hexyl phthalate	0.97 kg/kg to 1 kg/kg	0.006 kg/kg to 0.0002 kg/kg	
	dicyclohexyl phthalate	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	butyl benzyl phthalate	0.98 kg/kg to 1 kg/kg	0.0015 kg/kg to 0.0002 kg/kg	
	simazine	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	thiuram	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	thiobencarb	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	4-*n* -nonylphenol	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.001 mol/mol	
	4-*t* -octylphenol	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	4-*t* -butylphenol	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	4-*n* -heptylphenol	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.001 mol/mol	
	2,4-dichlorophenol	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.001 mol/mol	
Environmental matrix (fish oil)	*p,p′*-DDE	1 mg/kg to 10 mg/kg	0.014 mg/kg	
	p,p′- DDT	0.05 mg/kg to 0.5 mg/kg	0.0031 mg/kg	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Organic standard solution	*p,p′*-DDT/2,2,4-trimethylpentane	0.05 mg/kg to 20 mg/kg	7 % (relative)	2017-01-20
	p,p′-DDE/2,2,4-trimethylpentane	0.5 mg/kg to 20 mg/kg	2 % (relative)	
	γ- HCH/2,2,4-Trimethylpentane	0.03 mg/kg to 20 mg/kg	1 % (relative)	
	p,p′-DDT + *p,p′*-DDE + *p,p′*-DDD + γ-HCH /2,2,4-trimethylpentane	*p,p′*-DDT : 0.05 mg/kg to 20 mg/kg *p,p′*-DDE : 0.5 mg/kg to 20 mg/kg *p,p′*-DDD : 0.5 mg/kg to 20 mg/kg γ-HCH : 0.03 mg/kg to 20 mg/kg	*p,p′*- DDT : 2 % to 1 % (relative) *p,p′*- DDE : 1 % to 0.5 % (relative) *p,p′*- DDD : 1% to 0.5 % (relative) γ- HCH : 2 % to 0.5 % (relative)	
	PCB28/2,2,4-trimethylpentane	2 mg/kg to 50 mg/kg	1.7 % (relative)	
	PCB70/2,2,4-trimethylpentane	2 mg/kg to 50 mg/kg	1.8 % (relative)	
	PCB105/2,2,4-trimethylpentane	2 mg/kg to 50 mg/kg	2.4 % (relative)	
	PCB153/2,2,4-trimethylpentane	2 mg/kg to 50 mg/kg	1.7 % (relative)	
	PCB170/2,2,4-trimethylpentane	2 mg/kg to 50 mg/kg	2.0 % (relative)	
	PCB194/2,2,4-trimethylpentane	2 mg/kg to 50 mg/kg	1.6 % (relative)	
	PCB28+PCB70+PCB105 +PCB153+PCB170+PCB194 /2,2,4 -trimethylpentane	PCB28 : 2 mg/kg to 50 mg/kg PCB70 : 2 mg/kg to 50 mg/kg PCB105 : 2 mg/kg to 50 mg/kg PCB153 : 2 mg/kg to 50 mg/kg PCB170 : 2 mg/kg to 50 mg/kg PCB194 : 2 mg/kg to 50 mg/kg	PCB28 : 1.7 % (relative) PCB70 : 1.8 % (relative) PCB105 : 2.4 % (relative) PCB153 : 1.7 % (relative) PCB170 : 2.0 % (relative) PCB194 : 1.6 % (relative)	
	sulfur in toluene (as sulfur)	0.5 mg/kg to 10000 mg/kg	0.02 mg/kg to 10 mg/kg	
		10 µg/kg to 500 µg/kg	5 µg/kg to 20 µg/kg	
CRMs for thermal properties	cyclohexane (thermal analysis with thermal analyzer such as DSC)	phase transition temperature 186 K to 280 K	0.04 K to 0.1 K	
		phase transition enthalpy 30 Jg^{-1} to 90 Jg^{-1}	0.7 Jg^{-1} to 3 Jg^{-1}	
High purity organic materials	perfluorooctanoic acid	0.95 kg/kg to 1 kg/kg	0.006 kg/kg to 0.002 kg/kg	
Organic standard solution	benzo[*a*]pyrene/ 2,2,4-trimethylpentane	10 mg/kg to 200 mg/kg	4 % to 1 % (relative)	
	potassium perfluorooctanesulfonate /methanol	5 mg/kg to 100 mg/kg	4 % to 1 % (relative)	
Standard solution (water in organic solvent)	water	0.1 g/kg to 10 g/kg	3 % to 0.1 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Food (pesticide in grain)	fenitrothion	0.1 mg/kg to 1 mg/kg	20 % to 5 % (relative)	2017-01-20
	etofenprox	0.1 mg/kg to 1 mg/kg	30 % to 5 % (relative)	
Food (pesticide in vegetable)	diazinon	0.1 mg/kg to 100 mg/kg	40 % to 5 % (relative)	
	fenitrothion	0.1 mg/kg to 100 mg/kg	20 % to 3 % (relative)	
	chlorpyrifos	1 mg/kg to 100 mg/kg	40 % to 5 % (relative)	
	permethrin	0.1 mg/kg to 100 mg/kg	30 % to 4 % (relative)	
	cypermethrin	0.1 mg/kg to 100 mg/kg	40 % to 5 % (relative)	
	etofenprox	1 mg/kg to 100 mg/kg	20 % to 3 % (relative)	
Food (pesticide in fruits)	diazinon	0.1 mg/kg to 10 mg/kg	20 % to 2 % (relative)	
	fenitrothion	0.1 mg/kg to 10 mg/kg	20 % to 2 % (relative)	
	permethrin	0.1 mg/kg to 10 mg/kg	20 % to 2 % (relative)	
	cypermethrin	0.1 mg/kg to 10 mg/kg	30 % to 3 % (relative)	
Food (pesticide in beans)	diazinon	0.001 mg/kg to 0.1 mg/kg	20 % to 2 % (relative)	
	fenitrothion	0.001 mg/kg to 0.2 mg/kg	20 % to 2 % (relative)	
	chlorpyrifos	0.001 mg/kg to 0.3 mg/kg	30 % to 3 % (relative)	
	permethrin	0.002 mg/kg to 0.1 mg/kg	20 % to 2 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Environmental matrix (trace elements in sediment)	Sb	0.1 mg/kg to 3 mg/kg	10 % to 2 % (relative)	2017-01-20
	Cd	0.1 mg/kg to 3 mg/kg	10 % to 2 % (relative)	
	Cu	5 mg/kg to 500 mg/kg	5 % to 1 % (relative)	
	Pb	2 mg/kg to 250 mg/kg	5 % to 1 % (relative)	
	Ni	5 mg/kg to 50 mg/kg	5 % to 2 % (relative)	
	Zn	20 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	
	As	1 mg/kg to 50 mg/kg	20 % to 2 % (relative)	
	Co	1 mg/kg to 50 mg/kg	15 % to 2 % (relative)	
	Se	0.1 mg/kg to 5 mg/kg	20 % to 1 % (relative)	
	Cr	10 mg/kg to 500 mg/kg	10 % to 1 % (relative)	
	Hg	0.02 mg/kg to 5 mg/kg	15 % to 1 % (relative)	
	Ag	0.05 mg/kg to 2 mg/kg	4 % to 3 % (relative)	
	Mo	0.5 mg/kg to 20 mg/kg	7 % to 3 % (relative)	
	Sn	1 mg/kg to 50 mg/kg	5 % to 2 % (relative)	
Environmental matrix (organotins in marine sediment)	tri-*n*-butyltin	1 µg/kg to 2000 µg/kg (as Sn)	15 % to 3 % (relative)	
	di-*n*-butyltin	1 µg/kg to 2000 µg/kg (as Sn)	15 % to 3 % (relative)	
	mono-*n*-butyltin	1 µg/kg to 2000 µg/kg (as Sn)	15 % to 3 % (relative)	
	triphenyltin	1 µg/kg to 2000 µg/kg (as Sn)	20 % to 3 % (relative)	
	diphenyltin	1 µg/kg to 2000 µg/kg (as Sn)	20 % to 3 % (relative)	
Environmental (polychlorinated biphenyls in mineral oil)	PCB3	0.2 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB8	0.2 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB28	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB52	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB101	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB118	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB138	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB153	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB180	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB194	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB206	0.09 µg/kg to 10 mg/kg	50 % to 3 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Environmental matrix (fish tissue)	PCB28	1 µg/kg to 100 µg/kg	15 % to 2 % (relative)	2017-01-20
	PCB70	1 µg/kg to 10 µg/kg	15 % to 5 % (relative)	
	PCB105	1 µg/kg to 100 µg/kg	15 % to 2 % (relative)	
	PCB153	10 µg/kg to 200 µg/kg	10 % to 2 % (relative)	
	PCB170	0.1 µg/kg to 10 µg/kg	10 % to 4 % (relative)	
	p,p′-DDT	1 µg/kg to 10 µg/kg	10 % to 5 % (relative)	
	p,p′-DDE	10 µg/kg to 100 µg/kg	15 % to 5 % (relative)	
	p,p′-DDD	1 µg/kg to 10 µg/kg	10 % to 5 % (relative)	
	dieldrin	1 µg/kg to 10 µg/kg	10 % to 3 % (relative)	
	trans -nonachlor	1 µg/kg to 10 µg/kg	10 % to 4 % (relative)	
Environmental matrix (PAHs/dust)	fluorene	0.1 mg/kg to 100 mg/kg	40 % to 10 % (relative)	
	anthracene	0.1 mg/kg to 100 mg/kg	40 % to 10 % (relative)	
	fluoranthene	1 mg/kg to 1000 mg/kg	30 % to 10 % (relative)	
	pyrene	1 mg/kg to 1000 mg/kg	30 % to 10 % (relative)	
	benzo[*a*]anthracene	0.1 mg/kg to 100 mg/kg	20 % to 10 % (relative)	
	benzo[*b*]fluoranthene	0.1 mg/kg to 100 mg/kg	20 % to 10 % (relative)	
	benzo[*k*]fluoranthene	0.01 mg/kg to 10 mg/kg	20 % to 10 % (relative)	
	benzo[*a*]pyrene	0.1 mg/kg to 100 mg/kg	30 % to 10 % (relative)	
	perylene	0.01 mg/kg to 10 mg/kg	30 % to 10 % (relative)	
	indeno[1,2,3-*cd*]pyrene	0.1 mg/kg to 100 mg/kg	40 % to 10 % (relative)	
	benzo[*ghi*]perylene	0.1 mg/kg to 100 mg/kg	20 % to 10 % (relative)	
Environmental matrix (toxic elements in tunnel dust)	Cr	5 mg/kg to 5 % (mass fraction)	10 % to 2 % (relative)	
	Ni	5 mg/kg to 2 % (mass fraction)	5 % to 2 % (relative)	
	Pb	2 mg/kg to 1 % (mass fraction)	5 % to 2 % (relative)	
	Mn	2 mg/kg to 1 % (mass fraction)	5 % to 2 % (relative)	
	Cd	0.1 mg/kg to 0.1 % (mass fraction)	10 % to 2 % (relative)	
Environmental (polychlorinated biphenyls in serum)	PCB118	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	
	PCB138	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	
	PCB153	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	
	PCB194	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Environmental (polychlorinated biphenyls and organochlorine pesticides in sediment)	PCB3	0.1 µg/kg to 100 µg/kg	30 % to 5 % (relative)	2017-01-20
	PCB15	0.1 µg/kg to 100 µg/kg	20 % to 4 % (relative)	
	PCB28	1 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB31	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB70	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB101	1 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB105	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB138	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB153	1 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB170	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB180	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB194	0.1 µg/kg to 100 µg/kg	20 % to 2 % (relative)	
	PCB206	0.1 µg/kg to 100 µg/kg	20 % to 2 % (relative)	
	PCB209	0.1 µg/kg to 100 µg/kg	20 % to 2 % (relative)	
	p,p′ - DDT	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	p,p′ - DDE	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	p,p′- DDD	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	γ- HCH	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
Environmental (polycyclic aromatic hydrocarbons in sediment)	fluorene	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	
	phenanthrene	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	
	anthracene	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	fluoranthene	1 µg/kg to 100 mg/kg	20 % to 5 % (relative)	
	pyrene	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	
	benzo[*c*]phenanthrene	1 µg/kg to 100 mg/kg	10 % to 5 % (relative)	
	benz[*a*]anthracene	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	
	chrysene	1 µg/kg to 100 mg/kg	10 % to 5 % (relative)	
	benzo[*b*]fluoranthene	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	benzo[*j*]fluoranthene	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	benzo[*k*]fluoranthene	1 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
	benzo[*a*]fluoranthene	1 µg/kg to 100 mg/kg	50 % to 10 % (relative)	
	benzo[*e*]pyrene	1 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
	benzo[*a*]pyrene	1 µg/kg to 100 mg/kg	20 % to 5 % (relative)	
	perylene	100 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
	indeno[1,2,3-*cd*]pyrene	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	benzo[*ghi*]perylene	1 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
	dibenz[*a,h*]anthracene	1 µg/kg to 100 mg/kg	50 % to 10 % (relative)	
Fuel (components in bioethanol fuel)	water	100 mg/kg to 5000 mg/kg	2 % to 0.2 % (relative)	
	methanol	0.2 g/kg to 1 g/kg	10 % to 2 % (relative)	
	S	1 mg/kg to 5 mg/kg	3 % (relative)	
	Cu	0.0001 mg/kg to 500 mg/kg	10 % to 1 % (relative)	
Fuel (components in biodiesel fuel)	water	300 mg/kg to 1000 mg/kg	10 % to 5 % (relative)	
	Na	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	Mg	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	K	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	Ca	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	P	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	S	2 mg/kg to 50 mg/kg	10 % to 5 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Environmental matirix (river water and drinking water)	Al	1 μg/kg to 100 μg/kg	8 % to 1 % (relative)	2017-01-20
	Sb	0.001 μg/kg to 10 μg/kg	5 % to 1 % (relative)	
	As	0.05 μg/kg to 50 μg/kg	15 % to 1 % (relative)	
	Ba	0.5 μg/kg to 50 μg/kg	2 % to 1 % (relative)	
	B	1 μg/kg to 100 μg/kg	5 % to 1 % (relative)	
	Cd	0.001 μg/kg to 10 μg/kg	15 % to 2 % (relative)	
	Cr	0.05 μg/kg to 50 μg/kg	8 % to 1 % (relative)	
	Cu	0.05 μg/kg to 50 μg/kg	15 % to 1 % (relative)	
	Fe	0.1 μg/kg to 100 μg/kg	10 % to 1 % (relative)	
	Pb	0.001 μg/kg to 10 μg/kg	15 % to 1 % (relative)	
	Mn	0.01 μg/kg to 50 μg/kg	15 % to 1 % (relative)	
	Mo	0.05 μg/kg to 10 μg/kg	2 % to 1 % (relative)	
	Ni	0.01 μg/kg to 50 μg/kg	5 % to 1 % (relative)	
	Se	0.1 μg/kg to 50 μg/kg	10 % to 1 % (relative)	
	Zn	0.05 μg/kg to 50 μg/kg	10 % to 1 % (relative)	
	Na	1 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	K	0.2 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	Mg	0.2 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	Ca	1 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	Rb	0.05 μg/kg to 100 μg/kg	5 % to 1 % (relative)	
	Sr	0.05 μg/kg to 200 μg/kg	5 % to 1 % (relative)	
	P	1 μg/kg to 100 μg/kg	5 % to 1 % (relative)	
Standard solution for chemical speciation	arsenobetaine	1 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	
	arsenate(As(Ⅴ))	1 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	
	dimethylarsenic acid	1 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Food (trace elements and arsenic compounds in grains and beans)	Cr	0.01 mg/kg to 10 mg/kg	15 % to 2 % (relative)	2017-01-20
	Mn	0.1 mg/kg to 50 mg/kg	10 % to 1.5 % (relative)	
	Fe	0.1 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	Ni	0.01 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
	Cu	0.1 mg/kg to 50 mg/kg	10 % to 1.5 % (relative)	
	Zn	0.1 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	As	0.005 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Rb	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Sr	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Cd	0.005 mg/kg to 5 mg/kg	7 % to 2 % (relative)	
	Mo	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Ba	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Pb	0.001 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
	Na	0.1 mg/kg to 50 mg/kg	15 % to 2 % (relative)	
	Mg	10 mg/kg to 5000 mg/kg	5 % to 1.2 % (relative)	
	K	100 mg/kg to 50000 mg/kg	5 % to 2 % (relative)	
	Ca	5 mg/kg to 5000 mg/kg	5 % to 1.5 % (relative)	
	P	100 mg/kg to 9000 mg/kg	10 % to 2 % (relative)	
	arsenite(As(Ⅲ))	0.005 mg/kg to 50 mg/kg (as As)	8 % to 2 % (relative)	
	arsenate(As(Ⅴ))	0.005 mg/kg to 50 mg/kg (as As)	8 % to 2 % (relative)	
	dimethylarsenic acid	0.005 mg/kg to 50 mg/kg (as As)	8 % to 2 % (relative)	
Food (trace elements, arsenobetaine and methylmercury in fish, shellfish, and cephalopoda tissues)	Cr	0.2 mg/kg to 5 mg/kg	15 % to 3 % (relative)	
	Mn	0.1 mg/kg to 5 mg/kg	10 % to 1.5 % (relative)	
	Fe	1 mg/kg to 100 mg/kg	10 % to 3 % (relative)	
	Ni	0.2 mg/kg to 20 mg/kg	15 % to 3 % (relative)	
	Cu	0.2 mg/kg to 100 mg/kg	10 % to 1.5 % (relative)	
	Zn	1 mg/kg to 100 mg/kg	10 % to 1.5 % (relative)	
	As	1 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	Se	0.1 mg/kg to 10 mg/kg	15 % to 3 % (relative)	
	Hg	0.1 mg/kg to 10 mg/kg	10 % to 1 % (relative)	
	Na	1 mg/kg to 100 g/kg	10 % to 2 % (relative)	
	Mg	0.5 mg/kg to 100 g/kg	5 % to 1 % (relative)	
	K	1 mg/kg to 100 g/kg	10 % to 2 % (relative)	
	Ca	0.1 mg/kg to 100 g/kg	15 % to 3 % (relative)	
	arsenobetaine	1 mg/kg to 100 mg/kg (as As)	10 % to 2 % (relative)	
	methylmercury	0.1 mg/kg to 10 mg/kg (as Hg)	5 % to 1 % (relative)	
	Sr	0.02 mg/kg to 10 mg/kg	10 % to 1.2 % (relative)	
	Cd	0.01 mg/kg to 5 mg/kg	10 % to 1.5 % (relative)	
	P	1 g/kg to 100 g/kg	5 % to 2 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Food (trace elements and arsenic compounds in algae)	Na	0.5 g/kg to 100 g/kg	10 % to 1 % (relative)	2017-01-20
	K	1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Mg	0.1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Ca	0.5 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Sr	0.1 g/kg to 50 g/kg	10 % to 1 % (relative)	
	P	0.01 g/kg to 50 g/kg	10 % to 1 % (relative)	
	Al	10 mg/kg to 1000 mg/kg	10 % to 3 % (relative)	
	As	0.5 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	Ba	0.5 mg/kg to 100 mg/kg	10 % to 1 % (relative)	
	Cd	0.01 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Co	0.1 mg/kg to 10 mg/kg	10 % to 3 % (relative)	
	Cr	0.1 mg/kg to 50 mg/kg	15 % to 2 % (relative)	
	Cu	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Fe	10 mg/kg to 1000 mg/kg	10 % to 2 % (relative)	
	Mn	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Ni	0.1 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
	Pb	0.01 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
	Zn	0.1 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	arsenate (As(V))	0.5 mg/kg to 100 mg/kg (as As)	10 % to 2 % (relative)	
	Hg	0.01 mg/kg to 0.1 mg/kg	10 % to 2 % (relative)	
Environmental matrix (trace elements in plant leaves)	Al	5 mg/kg to 5000 mg/kg	5 % to 1 % (relative)	
	B	1 mg/kg to 500 mg/kg	10 % to 2 % (relative)	
	Ba	1 mg/kg to 500 mg/kg	10 % to 1 % (relative)	
	Ca	200 mg/kg to 20000 mg/kg	5 % to 1 % (relative)	
	Cd	0.005 mg/kg to 50 mg/kg	10 % to 3 % (relative)	
	Co	0.01 mg/kg to 5 mg/kg	10 % to 2 % (relative)	
	Cu	0.5 mg/kg to 500 mg/kg	5 % to 1 % (relative)	
	Fe	0.5 mg/kg to 2000 mg/kg	10 % to 1 % (relative)	
	K	100 mg/kg to 30000 mg/kg	5 % to 1 % (relative)	
	Li	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Mg	20 mg/kg to 5000 mg/kg	5 % to 1 % (relative)	
	Mn	5 mg/kg to 10000 mg/kg	5 % to 1 % (relative)	
	Na	0.5 mg/kg to 100 mg/kg	20 % to 1 % (relative)	
	Ni	0.3 mg/kg to 100 mg/kg	10 % to 1 % (relative)	
	P	150 mg/kg to 10000 mg/kg	10 % to 1 % (relative)	
	Pb	0.01 mg/kg to 100 mg/kg	20 % to 3 % (relative)	
	Rb	0.5 mg/kg to 200 mg/kg	10 % to 1 % (relative)	
	Sr	0.5 mg/kg to 200 mg/kg	5 % to 1 % (relative)	
	Zn	1 mg/kg to 500 mg/kg	10 % to 1 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Food (trace elements in milk and dairy products)	Ca	0.5 g/kg to 100 g/kg	10 % to 1 % (relative)	2017-01-20
	Fe	0.01 g/kg to 10 g/kg	10 % to 2 % (relative)	
	K	0.1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Mg	0.1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Na	0.01 g/kg to 50 g/kg	10 % to 1 % (relative)	
	P	0.1 g/kg to 50 g/kg	10 % to 1 % (relative)	
	Ba	0.05 mg/kg to 10 mg/kg	10 % to 1 % (relative)	
	Cu	0.5 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	Mn	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Mo	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Rb	0.1 mg/kg to 500 mg/kg	10 % to 2 % (relative)	
	Sr	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Zn	0.1 mg/kg to 1000 mg/kg	10 % to 2 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
High purity organic materials	creatinine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	2017-01-20
	urea	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	hydrocortisone	0.990 kg/kg to 1 kg/kg	0.001 kg/kg	
	isoleucine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	phenylalanine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	valine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	proline	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	alanine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	leucine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	lysine monohydrochloride	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	arginine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	uric acid	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	triolein	0.990 kg/kg to 1 kg/kg	0.001 kg/kg	
	triglyceride	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	glycine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	glutamic acid	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	aspartic acid	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	tyrosine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	histidine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	serine	0.990 kg/kg to 1 kg/kg	0.001 kg/kg	
	threonine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	methionine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	cystine	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
Organic standard solution	C-reactive protein	10 μmol/kg to 50 μmol/kg	2 % (relative)	
	total deoxyribonucleic acid (DNA) less than 650 bp	0.5 ng/μL to 200 ng/μL	5 % (relative)	
	C-peptide	0.08 g/L to 1 g/L	3 % (relative)	
	total C-peptide (mixture of C-peptide, deamidated C-peptide, and pyroglutamylated C-peptide)	0.08 g/L to 1 g/L	3 % (relative)	
	total ribonucleic acid (RNA) less than 1100 bases	10 ng/μL to 200 ng/μL	4 % (relative)	
	albumin	1 g/L to 100 g/L	1.6 % (relative)	
	okadaic acid	0.5 μg/mL to 10 μg/mL	4 % (relative)	
	dinophysistoxin-1	0.5 μg/mL to 10 μg/mL	1.6% (relative)	
Steroids in serum	cortisol (hydrocortisone)	15 μg/L to 250 μg/L	3 % to 2 % (relative)	
	aldosterone	100 pg/mL to 1000 pg/mL	5 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Molecular weight of polymer	polystyrene latex nanoparticle (light scattering intensity averaged diameter)	100 nm to 200 nm	1 % (relative)	2018-03-26
	low molar mass monodisperse polystyrene (number-average molecular mass)	8000 to 10000	1 % (relative)	
	poly (ethylene glycol) nonylphenyl ether (mass-average molecular mass, number-average molecular mass)	600 to 700	3 % (relative)	
	poly (ethylene glycol) nonylphenyl ether (mass fraction and mole fraction of each degree of polymerization)	1×10^{-4} to 1	5 % (relative)	
	polydisperse polystyrene (mass-average molar mass)	200,000 to 300,000	5 % (relative)	
	polydisperse polystyrene (number-average molar mass)	60,000 to 150,000 (polydispersity range is priority to others.)	5 % (relative)	
	polydisperse polystyrene (polydispersity)	2 to 3	5 % (relative)	
	polystyrene (mass-average molecular mass, number-average molecular mass, peak-average molecular mass)	400 to 2600	0.5 % (relative)	
	polystyrene (polydispersity)	1.05 to 1.20	1.5 % (relative)	
	polystyrene (mass fraction and mole fraction of each degree of polymerization)	2×10^{-5} to 1	2 % (relative)	
	poly (ethylene glycol) (mass-average molecular mass, number-average molecular mass)	350 to 1700	1 % (relative)	
	poly (ethylene glycol) (mass fraction and mole fraction of each degree of polymerization)	3×10^{-5} to 1	1 % (relative)	
	monodisperse polystyrene (mass-average molar mass)	1×10^{5} to 1×10^{6}	5 % (relative)	
	poly (ethylene glycol) 23mer (mass fraction)	0.99 to 1	0.1 % (relative)	
Polymer reference material (polymer: organic compounds)	polybrominated diphenyl ether in plastics (plystyrene, polyvinyl chloride)	50 mg/kg to 1500 mg/kg	5 % to 2 % (relative)	2017-01-20
	plasticizers (dimethyl phthalate, diethyl phthalate, di-*n*-propyl phthalate, di-*i*-butyl phthalate, di-*n*-butyl phthalate, di-*n*-pentyl phthalate, di-*n*-hexyl phthalate, dicyclohexyl phthalate, di-n-heptyl phthalate, butyl benzyl phthalate, bis(2-ethylhexyl) phthalate, bis(*n*-octyl) phthalate) in plastics (polystylen, polypropylene	50 mg/kg to 1500 mg/kg	3 % to 1.5 % (relative)	
Polymer (perfluoroalkyl substances in polymer)	perfluorooctanesulfonic acid and its salts	10 mg/kg to 100 mg/kg	20 % to 10 % (relative)	

Subcategory	Measurand	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	Date of Accreditation
Ion implantation reference material	mass of arsenic per unit area	30 ng/cm^2 to 3000 ng/cm^2	2.4 % (relative)	2013-04-26
Reference material for positron lifetime	positron lifetime in solids	0.1 ns to 20 ns	2 % (relative)	
Semiconductor material	mass of hafnium per unit area	2 µg/cm^2 to 20 µg/cm^2	3 % (relative)	2018-03-26
Steel	chromium	mass fraction 20 % to 40 %	0.1 % (relative)	2013-04-26
	nickel	mass fraction 15 % to 70 %	0.1 % (relative)	
	iron	mass fraction 5 % to 70 %	0.1 % (relative)	
	carbon	mass fraction 0.05 % to 1.0 %	10.0 % to 1.0 % (relative)	
Thin film	film thickness	each layer 1 nm to 200 nm (total film thickness 3 nm to 200 nm or less)	0.27 % to 0.06 % (relative)	
	arsenic	0.01 g/kg to 1.6 g/kg	2.4 % (relative)	2018-03-26
Thick film	film thickness	70 nm to 6000 nm	1.2 % (relative)	
	gold	area density 1.3 µg/mm^2 to 5.8 µg/mm^2	0.3 % (relative)	
	nickel	area density 4 µg/mm^2 to 52 µg/mm^2	0.3 % (relative)	
	copper	area density 4 µg/mm^2 to 52 µg/mm^2	0.4 % (relative)	