



International Accreditation Japan

Information on Accredited Calibration Laboratory

Date of the update of the information : 2026-04-01

Accreditation Identification: ASNITE 0001 Calibration-Chem

Name of Calibration Laboratory : National Metrology Institute of Japan,
National Institute of Advanced Industrial
Science and Technology

Location of Calibration Laboratory: 1-1-1 Umezono, Tsukuba-shi, Ibaraki
305-8563, JAPAN

Name of Legal Entity: National Institute of Advanced Industrial
Science and Technology

Conformance Accreditation Standard: ISO/IEC 17025:2017

Expiry Date of Accreditation : 2029-10-31

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation	
	Instrument or Artefact	Calibration Methods *1	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)		
Standard gases	high purity nitrogen monoxide (NO)	•Subtraction method	0.99 mol/mol to 1 mol/mol	1.0 % to 0.01 % (relative)	2024-11-01	
	impurities in NO	NO ₂	•FT-IR	10 µmol/mol to 10000 µmol/mol		10 % to 2.5 % (relative)
		N ₂	•GC-TCD	11 µmol/mol to 5000 µmol/mol		100 % to 2.5 % (relative)
		O ₂	•GC-TCD	11 µmol/mol to 5000 µmol/mol		100 % to 2.5 % (relative)
		N ₂ O	•FT-IR •GC-TCD	7.5 µmol/mol to 11000 µmol/mol		10 % to 0.5 % (relative)
		CH ₄	•FT-IR •GC-FID	2 µmol/mol to 11000 µmol/mol		100 % to 0.5 % (relative)
		C ₃ H ₈	•GC-FID	2 µmol/mol to 11000 µmol/mol		100 % to 0.5 % (relative)
		H ₂ O	•FT-IR	21 µmol/mol to 100 µmol/mol		100 % to 0.5% (relative)
		CO ₂	•FT-IR	10 µmol/mol to 100 µmol/mol		100 % to 0.5% (relative)
	high purity sulfur dioxide (SO ₂)	•Subtraction method	0.99 mol/mol to 1 mol/mol	1.0 % to 0.01 % (relative)		
	impurities in SO ₂	CO ₂	•GC-TCD •FT-IR	1 µmol/mol to 15000 µmol/mol		100 % to 0.5 % (relative)
		N ₂	•GC-TCD	1 µmol/mol to 15000 µmol/mol		100 % to 0.5 % (relative)
		O ₂	•GC-TCD	1 µmol/mol to 15000 µmol/mol		100 % to 0.5 % (relative)
		CH ₄	•GC-FID	0.09 µmol/mol to 11000 µmol/mol		100 % to 0.5 % (relative)
		C ₃ H ₈	•GC-FID	0.04 µmol/mol to 11000 µmol/mol		100 % to 0.5 % (relative)
		H ₂ O	•FT-IR	24 µmol/mol to 100 µmol/mol		100 % to 0.5 % (relative)
	high purity methane (CH ₄)	•Subtracting method	0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.0005 mmol/mol		
	impurities in CH ₄	N ₂	•GC-PID •GC-TCD	0.1 µmol/mol to 100 µmol/mol		80 % to 2 % (relative)
		O ₂	•GC-PID •GC-TCD	0.1 µmol/mol to 100 µmol/mol		60 % to 2 % (relative)
		Ar	•GC-PID •GC-TCD	0.1 µmol/mol to 100 µmol/mol		40 % to 2 % (relative)
CO		•GC-PID •GC-TCD	0.04 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)		
CO ₂		•GC-PID •GC-TCD	0.04 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)		
C ₂ H ₆		•GC-FID	0.02 µmol/mol to 100 µmol/mol	100 % to 2 % (relative)		
H ₂		•GC-PID •GC-TCD	0.07 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)		
hexane		•GC-FID	0.02 µmol/mol to 20 µmol/mol	100 % to 0.6 % (relative)		
H ₂ O		•Dew point measuring method	0.1 µmol/mol to 130 µmol/mol	70 % to 5 % (relative)		

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Standard gases	high purity propane (C ₃ H ₈)		•Subtracting method	0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.001 mmol/mol
	impurities in C ₃ H ₈	N ₂	•GC-TCD	3 μmol/mol to 100 μmol/mol	80 % to 2 % (relative)
		O ₂	•GC-TCD	0.1 μmol/mol to 100 μmol/mol	60 % to 2 % (relative)
		Ar	•GC-TCD	0.1 μmol/mol to 100 μmol/mol	40 % to 2 % (relative)
		CO ₂	•GC-TCD	0.1 μmol/mol to 100 μmol/mol	50 % to 2 % (relative)
		CH ₄	•GC-FID	0.1 μmol/mol to 100 μmol/mol	30 % to 2 % (relative)
		C ₂ H ₆	•GC-FID	0.1 μmol/mol to 100 μmol/mol	30 % to 2 % (relative)
		propylene	•GC-FID	0.1 μmol/mol to 100 μmol/mol	30 % to 2 % (relative)
		butane	•GC-FID	0.1 μmol/mol to 100 μmol/mol	30 % to 2 % (relative)
		isobutane	•GC-FID	0.1 μmol/mol to 100 μmol/mol	30 % to 2 % (relative)
	H ₂ O	•Dew point measuring method	10 μmol/mol to 1000 μmol/mol	70 % to 20 % (relative)	
	high purity carbon dioxide (CO ₂)		•Subtracting method	0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.002 mmol/mol
	impurities in CO ₂	N ₂	•GC-TCD	0.1 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)
		O ₂	•GC-TCD	0.1 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)
		H ₂	•GC-TCD	0.8 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)
		He	•GC-TCD	0.8 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)
		CH ₄	•GC-FID	0.004 μmol/mol to 1 μmol/mol	100 % to 1 % (relative)
		C ₃ H ₈	•GC-FID	0.004 μmol/mol to 1 μmol/mol	100 % to 1 % (relative)
		CO	•GC-FID	0.05 μmol/mol to 1 μmol/mol	100 % to 0.5 % (relative)
		H ₂ O	•Capacitance-type moisture analyzer	0.9 μmol/mol to 130 μmol/mol	100 % to 30 % (relative)
high purity carbon monoxide (CO)		•Subtracting method	0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.02 mmol/mol	
impurities in CO	N ₂	•GC-TCD	1.5 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)	
	O ₂	•GC-TCD	2.1 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)	
	H ₂	•GC-TCD	0.9 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)	
	He	•GC-TCD	0.4 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)	
	CH ₄	•GC-TCD	1.5 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)	
	CO ₂	•GC-TCD	0.3 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)	
	H ₂ O	•Quartz-crystal oscillator sample cell	0.36 μmol/mol to 100 μmol/mol	100 % to 0.5 % (relative)	

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	Instrument or Artefact	Calibration Methods*1	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Standard gases	high purity oxygen (O ₂)		• Subtracting method • Magnetopneumatic oxygen analyzer	0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.0005 mmol/mol
	impurities in O ₂	Ar	• GC-TCD	1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		N ₂	• GC-TCD	1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		CH ₄	• FT-IR	0.05 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)
		CO	• FT-IR	0.06 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)
		CO ₂	• FT-IR	0.05 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)
		N ₂ O	• FT-IR	0.05 µmol/mol to 1 µmol/mol	30 % to 5 % (relative)
		H ₂ O	• Dew point measuring method	0.5 µmol/mol to 130 µmol/mol	70 % to 30 % (relative)
	high purity vinyl chloride		• Subtracting method	0.99 mol/mol to 1 mol/mol	5 mmol/mol to 0.01 mmol/mol
	impurities in vinyl chloride	N ₂	• GC-TCD	1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		O ₂	• GC-TCD	1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		Ar	• GC-TCD	1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		CO ₂	• GC-TCD	1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		methyl chloride	• GC-FID	1 µmol/mol to 200 µmol/mol	30 % to 2 % (relative)
		ethyl chloride	• GC-FID	1 µmol/mol to 100 µmol/mol	20 % to 2 % (relative)
		H ₂ O	• Dew point measuring method	10 µmol/mol to 1000 µmol/mol	70 % to 20 % (relative)
	high purity 1,3-butadiene		• Subtracting method	0.98 mol/mol to 1 mol/mol	20 mmol/mol to 1 mmol/mol
	impurities in 1,3-butadiene	N ₂	• GC-TCD	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)
		O ₂	• GC-TCD	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)
		Ar	• GC-TCD	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)
CO ₂		• GC-TCD	5 µmol/mol to 1000 µmol/mol	30 % to 2 % (relative)	
butane		• GC-FID	1 µmol/mol to 500 µmol/mol	20 % to 2 % (relative)	
isobutane		• GC-FID	1 µmol/mol to 500 µmol/mol	20 % to 2 % (relative)	
1-butene		• GC-FID	1 µmol/mol to 1000 µmol/mol	20 % to 2 % (relative)	
<i>trans</i> -2-butene		• GC-FID	1 µmol/mol to 7000 µmol/mol	20 % to 2 % (relative)	
<i>cis</i> -2-butene		• GC-FID	1 µmol/mol to 8000 µmol/mol	20 % to 2 % (relative)	
isobutylene		• GC-FID	1 µmol/mol to 1000 µmol/mol	20 % to 2 % (relative)	
4-vinyl-1-cyclohexene (1,3-butadiene dimer)		• GC-FID	1 µmol/mol to 2150 µmol/mol	60 % to 30 % (relative)	
H ₂ O		• Dew point measuring method	10 µmol/mol to 1000 µmol/mol	70 % to 20 % (relative)	

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	Instrument or Artefact	Calibration Methods *1	Measurement Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Standard gases	high purity ethane		• Subtracting method	0.99 mol/mol to 1 mol/mol	1 mmol/mol to 0.001 mmol/mol
	impurities in ethane	N ₂	• GC-TCD	0.1 µmol/mol to 100 µmol/mol	80 % to 2 % (relative)
		O ₂	• GC-TCD	0.1 µmol/mol to 100 µmol/mol	60 % to 2 % (relative)
		CO ₂	• GC-TCD	0.1 µmol/mol to 100 µmol/mol	50 % to 2 % (relative)
		methane	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		ethylene	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		propane	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		propylene	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		butane	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		H ₂ O	• Dew point measuring method	10 µmol/mol to 1000 µmol/mol	70 % to 20 % (relative)
	high purity isobutane		• Subtracting method	0.99 mol/mol to 1 mol/mol	2 mmol/mol to 0.005 mmol/mol
	impurities in isobutane	N ₂	• GC-TCD	1.76 µmol/mol to 100 µmol/mol	100 % to 2 % (relative)
		O ₂	• GC-TCD	5 µmol/mol to 100 µmol/mol	100 % to 2 % (relative)
		CO ₂	• GC-TCD	11 µmol/mol to 100 µmol/mol	100 % to 2 % (relative)
		propane	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		butane	• GC-FID	0.1 µmol/mol to 200 µmol/mol	30 % to 2 % (relative)
		isobutene	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		<i>cis</i> -2-butene	• GC-FID	0.1 µmol/mol to 500 µmol/mol	30 % to 2 % (relative)
		<i>trans</i> -2-butene	• GC-FID	0.1 µmol/mol to 500 µmol/mol	30 % to 2 % (relative)
		pentane	• GC-FID	3 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		H ₂ O	• Dew point measuring method	50 µmol/mol to 3000 µmol/mol	70 % to 10 % (relative)
	high purity butane		• Subtracting method	0.99 mol/mol to 1 mol/mol	2 mmol/mol to 0.005 mmol/mol
	impurities in butane	N ₂	• GC-TCD	1.76 µmol/mol to 100 µmol/mol	100 % to 2 % (relative)
		O ₂	• GC-TCD	1.7 µmol/mol to 100 µmol/mol	100 % to 2 % (relative)
		CO ₂	• GC-TCD	11 µmol/mol to 100 µmol/mol	100 % to 2 % (relative)
		propane	• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)
		isobutane	• GC-FID	1 µmol/mol to 200 µmol/mol	30 % to 2 % (relative)
isobutene		• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
<i>cis</i> -2-butene		• GC-FID	0.1 µmol/mol to 500 µmol/mol	30 % to 2 % (relative)	
<i>trans</i> -2-butene		• GC-FID	0.1 µmol/mol to 500 µmol/mol	30 % to 2 % (relative)	
pentane		• GC-FID	0.1 µmol/mol to 100 µmol/mol	30 % to 2 % (relative)	
H ₂ O		• Dew point measuring method	50 µmol/mol to 3000 µmol/mol	70 % to 10 % (relative)	

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Subcategory	Calibration and Measurement Capabilities				Date of Accreditation	
	Instrument or Artefact	Calibration Methods * 1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)		
Standard gases	high purity isopentane	• Post-column reaction gas chromatography	0.99 mol/mol to 1 mol/mol	5 mmol/mol to 0.01 mmol/mol	2024-11-01	
	high purity pentane	• Post-column reaction gas chromatography	0.99 mol/mol to 1 mol/mol	5 mmol/mol to 0.01 mmol/mol		
	nitrogen	• Subtracting method	0.999 mol/mol to 1 mol/mol	1 mmol/mol to 0.004 mmol/mol		
	impurities in nitrogen	O ₂ + Ar	• GC-TCD	1 µmol/mol to 10 µmol/mol		100 % to 30 % (relative)
		carbon dioxide	• GC-FID	0.1 µmol/mol to 10 µmol/mol		100 % to 30 % (relative)
		total hydrocarbons	• Total hydrocarbon analyzer	0.005 µmol/mol to 10 µmol/mol		100 % to 30 % (relative)
		H ₂ O	• Dew point measuring method	1.4 µmol/mol to 10 µmol/mol		100 % to 30 % (relative)
	O ₂ /N ₂	• GC-TCD	5 µmol/mol to 5 mmol/mol	1 % to 0.1 % (relative)		
	N ₂ O/N ₂ or N ₂ O/air	• GC-TCD • GC-ECD	0.2 µmol/mol to 0.02 mol/mol	0.2 % to 0.1 % (relative)		
	CH ₄ /air	• CRDS	1600 nmol/mol to 2600 nmol/mol	1.3 nmol/mol		
	hexane/N ₂	• GC-FID	20 µmol/mol to 600 µmol/mol	2 % to 0.3 % (relative)		
	hexane/CH ₄	• GC-FID	20 µmol/mol to 600 µmol/mol	2 % to 0.3 % (relative)		
	N ₂ +CO ₂ +C ₃ H ₈ /CH ₄	N ₂ : • GC-TCD CO ₂ : • GC-TCD C ₃ H ₈ : • GC-TCD • GC-FID	N ₂ : 0.005 mol/mol to 0.02 mol/mol CO ₂ : 0.005 mol/mol to 0.02 mol/mol C ₃ H ₈ : 0.02 mol/mol to 0.1 mol/mol	N ₂ : 0.2 mmol/mol CO ₂ : 0.1 mmol/mol C ₃ H ₈ : 0.3 mmol/mol		
	synthetic natural gas	N ₂ : • GC-TCD CO ₂ : • GC-TCD C ₂ H ₆ : • GC-FID • GC-TCD C ₃ H ₈ : • GC-FID • GC-TCD <i>n</i> -C ₄ H ₁₀ : • GC-FID • GC-TCD <i>iso</i> -C ₄ H ₁₀ : • GC-FID • GC-TCD CH ₄ : • GC-TCD • subtracting method	N ₂ : 5 mmol/mol to 200 mmol/mol CO ₂ : 5 mmol/mol to 100 mmol/mol C ₂ H ₆ : 2 mmol/mol to 200 mmol/mol C ₃ H ₈ : 1 mmol/mol to 100 mmol/mol <i>n</i> -C ₄ H ₁₀ : 0.5 mmol/mol to 10 mmol/mol <i>iso</i> -C ₄ H 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 ₂ H ₆ : 0.5 % to 0.3 % (relative) C ₃ H ₈ : 0.5 % to 0.3 % (relative) <i>n</i> -C ₄ H ₁₀ : 0.5 % to 0.3 % (relative) <i>iso</i> -C ₄ H ₁₀ : 0.5 % to 0.3 % (relative) CH ₄ : 0.5 % to 0.3 % (relative)		
	HCHO/N ₂	• FT-IR	1 µmol/mol to 8 µmol/mol	2.5 % to 1 % (relative)		
	N ₂ /Ar	• GC-MS	1 µmol/mol to 200 µmol/mol	10 % to 0.5 % (relative)		
CO ₂ /air	• CRDS	150 µmol/mol to 800 µmol/mol	0.02 µmol/mol to 0.1 µmol/mol			

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	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Inorganic standard solution	Mg	• Chelatometric titration	0.8 g/kg to 1.2 g/kg	0.16 % (relative)	2024-11-01
	Al	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Cu	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Zn	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Fe	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ni	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Sr	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.08 % (relative)	
	V	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.08 % (relative)	
	Mn	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Mo	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Co	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Cd	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ga	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	In	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Pb	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Bi	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ba	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.16 % (relative)	
	Cr	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.06 % (relative)	
	Tl	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.28 % (relative)	
	Sn	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.14 % (relative)	
	Na	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	K	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Li	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Rb	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Cs	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	As	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Sb	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Bc	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.18 % (relative)	
	Zr	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ag	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
	Ca	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.10 % (relative)	
	Hg	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.10 % (relative)	
	Se	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.12 % (relative)	
	B	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.12 % (relative)	
	Te	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.13 % (relative)	
	Si	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.28 % (relative)	
	La	• Chelatometric titration	0.8 g/kg to 1.2 g/kg	0.13 % (relative)	
	Ti	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.19 % (relative)	
	Y	• Chelatometric titration	0.8 g/kg to 1.2 g/kg	0.13 % (relative)	
	chloride ion	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)	
nitrite ion	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.18 % (relative)		
nitrate ion	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.15 % (relative)		
phosphate ion	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.18 % (relative)		
bromide ion	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)		
iodide ion	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.04 % (relative)		
sulfate ion	• IC	0.8 g/kg to 1.2 g/kg	0.12 % (relative)		
cyanide ion	• Complexometric titration	0.8 g/kg to 1.2 g/kg	1.1 % (relative)		

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	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Inorganic standard solution	chlorate ion	• Gravimetric titration	0.8 g/kg to 1.2 g/kg	0.15 % (relative)	2024-11-01
	bromate ion	• Gravimetric titration	1.6 g/kg to 2.4 g/kg	0.14 % (relative)	
	ammonium ion	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.13 % (relative)	
	total organic carbon	• Gravimetric preparation	0.8 g/kg to 1.2 g/kg	0.16 % (relative)	
Inorganic standard solution (Isotopic standard)	²⁰⁶ Pb/ ²⁰⁴ Pb (Isotopic ratio)	• MC-ICP-MS	14 mol/mol to 22 mol/mol	0.025 % (relative)	
	²⁰⁷ Pb/ ²⁰⁴ Pb (Isotopic ratio)	• MC-ICP-MS	13 mol/mol to 17 mol/mol	0.023 % (relative)	
	²⁰⁸ Pb/ ²⁰⁴ Pb (Isotopic ratio)	• MC-ICP-MS	36 mol/mol to 40 mol/mol	0.023 % (relative)	
	²⁰⁸ Pb/ ²⁰⁶ Pb (Isotopic ratio)	• MC-ICP-MS	1.8 mol/mol to 2.2 mol/mol	0.0062 % (relative)	
	²⁰⁷ Pb/ ²⁰⁶ Pb (Isotopic ratio)	• MC-ICP-MS	0.8 mol/mol to 1.0 mol/mol	0.0042 % (relative)	
	²⁰⁴ Pb (Isotopic abundance)	• MC-ICP-MS	0.012 mol/mol to 0.015 mol/mol	0.029 % (relative)	
	²⁰⁶ Pb (Isotopic abundance)	• MC-ICP-MS	0.24 mol/mol to 0.28 mol/mol	0.0036 % (relative)	
	²⁰⁷ Pb (Isotopic abundance)	• MC-ICP-MS	0.20 mol/mol to 0.23 mol/mol	0.0047 % (relative)	
	²⁰⁸ Pb (Isotopic abundance)	• MC-ICP-MS	0.51 mol/mol to 0.53 mol/mol	0.0031 % (relative)	
	Pb (Molar mass)	• MC-ICP-MS	207.1 g/mol to 207.3 g/mol	0.000014 % (relative)	
Inorganic standard solution (Isotopic standard)	⁵⁶ Fe/ ⁵⁴ Fe (Isotopic ratio)	• MC-ICP-MS	11 mol/mol to 20 mol/mol	0.041 % (relative)	
	⁵⁷ Fe/ ⁵⁴ Fe (Isotopic ratio)	• MC-ICP-MS	0.25 mol/mol to 0.47 mol/mol	0.063 % (relative)	
	⁵⁸ Fe/ ⁵⁴ Fe (Isotopic ratio)	• MC-ICP-MS	0.034 mol/mol to 0.063 mol/mol	0.11 % (relative)	
	⁵⁴ Fe (Isotopic abundance)	• MC-ICP-MS	0.041 mol/mol to 0.076 mol/mol	0.038 % (relative)	
	⁵⁶ Fe (Isotopic abundance)	• MC-ICP-MS	0.064 mol/mol to 1.2 mol/mol	0.0037 % (relative)	
	⁵⁷ Fe (Isotopic abundance)	• MC-ICP-MS	0.015 mol/mol to 0.028 mol/mol	0.071 % (relative)	
	⁵⁸ Fe (Isotopic abundance)	• MC-ICP-MS	0.0020 mol/mol to 0.0037 mol/mol	0.11 % (relative)	
	Fe (Molar mass)	• MC-ICP-MS	55.29 g/mol to 56.4 g/mol	0.000068 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods* ¹	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
pH standard solution	pH	• Harned cell method	1.18 to 10.51	0.003	2024-11-01
Electrolytic conductivity standard solution	Electrolytic conductivity	• Impedance measurement	0.05 S/m to 15 S/m	0.15 % to 0.48 % (relative)	
		• Impedance measurement	0.005 S/m to 0.05 S/m	0.61 % (relative)	
High purity inorganic material (Potassium hydrogen phthalate)	acid	• Coulometric titration	99.9 % to 100.1 % (mass fraction as potassium hydrogen phthalate)	0.012 % to 0.015 %	
High purity inorganic material (Potassium dichromate)	oxidant	• Coulometric titration	99.9 % to 100.1 % (mass fraction as potassium dichromate)	0.010 % to 0.012 %	
High purity inorganic material (Arsenic(III) trioxide)	reductant	• Coulometric titration	99.9 % to 100.1 % (mass fraction as arsenic(III) trioxide)	0.014 % to 0.020 %	
High purity inorganic material (Sodium carbonate)	base	• Coulometric titration • Gravimetric titration	99.9 % to 100.1 % (mass fraction as sodium carbonate)	0.01 % to 0.02 %	
High purity inorganic material (Potassium iodate)	oxidant	• Coulometric titration • Gravimetric titration	99.9 % to 100.1 % (mass fraction as potassium iodate)	0.014 % to 0.020 %	
High purity inorganic material (Sodium oxalate)	reductant	• Coulometric titration • Gravimetric titration	99.9 % to 100.1 % (mass fraction as sodium oxalate)	0.023 % to 0.025 %	
Heavy metals in polymer	Cd	• ICP-OES • ICP-MS • ID-ICP-MS	5 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Cr	• ICP-OES • ICP-MS • ID-ICP-MS	10 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Hg	• ICP-OES • ICP-MS • ID-ICP-MS	10 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Pb	• ICP-OES • ICP-MS • ID-ICP-MS	10 mg/kg to 10000 mg/kg	0.5 % to 2.0 % (relative)	
	Br	• Instrumental Neutron Activation Analysis • ID-ICP-MS	50 mg/kg to 10000 mg/kg	2.0 % to 5.0 % (relative)	
Minor elements in metals and alloys (lead-free solder)	Pb	• ID-ICP-MS	100 mg/kg to 2000 mg/kg	0.8 % to 1.6 % (relative)	
	Ag	• ID-ICP-MS	2.8 % to 3.2 % (mass fraction)	0.8 % to 1.6 % (relative)	
	Cu	• ID-ICP-MS	0.3 % to 0.7 % (mass fraction)	0.5 % to 1.0 % (relative)	
High purity inorganic material (Sodium chloride)	Cl	• Coulometric titration	99.9 % to 100.1 % (mass fraction as sodium chloride)	0.03 % to 0.05 %	
High purity inorganic material (Ammonium chloride)	ammonium ion	• Coulometric titration	99.9 % to 100.1 % (mass fraction as ammonium chloride)	0.034 % to 0.070 %	
	Cl	• Gravimetric titration	99.9 % to 100.1 % (mass fraction as ammonium chloride)	0.054 % to 0.080 %	
High purity inorganic material (Amidosulfuric acid)	acid	• Coulometric titration	99.9 % to 100.1 % (mass fraction as amidosulfuric acid)	0.008 % to 0.012 %	
	N	• Coulometric titration	99.9 % to 100.1 % (mass fraction as amidosulfuric acid)	0.025 % to 0.040 %	
Hydrochloric acid	acid	• Coulometric titration	0.05 mol/kg to 2 mol/kg	0.016 % to 0.027 % (relative)	
High purity inorganic material (Tris(hydroxymethyl)aminomethane)	base	• Coulometric titration	99.8 % to 100.2 % (mass fraction as tris(hydroxymethyl)aminomethane)	0.026 %	
High purity inorganic material (Calcium carbonate)	Ca	• Chelatometric titration	99.5 % to 100.5 % (mass fraction as calcium carbonate)	0.030 %	
High purity inorganic material (Zinc)	Zn	• Subtracting method with impurity analysis	99.5 % to 100.0 % (mass fraction as zinc)	0.008 %	
	Zn (molar mass)	• ICP-MS	65.36 g/mol to 65.40 g/mol	0.0018 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
High purity organic materials	ethanol	• Freezing point depression method	0.998 mol/mol to 1 mol/mol	0.002 mol/mol to 0.0004 mol/mol	2024-11-01
	toluene	• Freezing point depression method	0.998 mol/mol to 1 mol/mol	0.003 mol/mol to 0.00006 mol/mol	
	1,2-dichloroethane	• Freezing point depression method	0.998 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0001 mol/mol	
	benzene	• Freezing point depression method	0.998 mol/mol to 1 mol/mol	0.001 mol/mol to 0.00002 mol/mol	
	<i>o</i> -xylene	• Freezing point depression method	0.998 mol/mol to 1 mol/mol	0.001 mol/mol to 0.00002 mol/mol	
	ethylbenzene	• Freezing point depression method	0.998 mol/mol to 1 mol/mol	0.0002 mol/mol to 0.002 mol/mol	
	cholesterol	• Freezing point depression method	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	<i>m</i> -xylene	• Freezing point depression method	0.997 mol/mol to 1 mol/mol	0.001 mol/mol to 0.00015 mol/mol	
	diethyl phthalate	• Freezing point depression method	0.997 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	chloroform	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	<i>p</i> -xylene	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0001 mol/mol	
	bromoform	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	bromodichloromethane	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	bisphenol A	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0006 mol/mol	
	dibromochloromethane	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	<i>trans</i> -1,2-dichloroethylene	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.001 mol/mol to 0.0002 mol/mol	
	trichloroethylene	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.002 mol/mol	
	tetrachloroethylene	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	1,1,1-trichloroethane	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0004 mol/mol	
	<i>cis</i> -1,2-dichloroethylene	• Freezing point depression method	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0007 mol/mol	
<i>cis</i> -1,3-dichloropropene	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.003 mol/mol		
1,4-dichlorobenzene	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0003 mol/mol		
styrene	• Freezing point depression method • Subtracting method	0.99 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.0005 kg/kg		

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
High purity organic materials	dichloromethane	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	2024-11-01
	tetrachloromethane	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	1,1-dichloroethylene	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	1,1,2-trichloroethane	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.0001 mol/mol	
	<i>trans</i> -1,3-dichloropropene	• Freezing point depression method	0.97 mol/mol to 1 mol/mol	0.005 mol/mol to 0.003 mol/mol	
	1,2-dichloropropane	• Freezing point depression method	0.995 mol/mol to 1 mol/mol	0.005 mol/mol to 0.003 mol/mol	
	acrylonitrile	• Freezing point depression method • Subtracting method	0.99 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.00005 kg/kg	
	acetaldehyde	• Titration • Subtracting method	0.99 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.003 kg/kg	
	17 β -estradiol	• qNMR • Subtracting method (HPLC-UV, HPLC-CAD, HS-GC-MS, Coulometric Karl-Fisher titration, TG)	0.96 kg/kg to 1.00 kg/kg	0.005 kg/kg to 0.003 kg/kg	
	progesterone	• qNMR • Freezing point depression method • Subtracting method (HPLC-UV, HPLC-CAD, HS-GC-MS, Coulometric Karl-Fisher titration, TG)	0.98 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.001 kg/kg	
	testosterone	• qNMR • Subtracting method (HPLC-UV, HPLC-CAD, HS-GC-MS, Coulometric Karl-Fisher titration, TG)	0.98 kg/kg to 1.00 kg/kg	0.01 kg/kg to 0.001 kg/kg	
	sulfur in organic materials (as sulfur)	• Freezing point depression method • Subtracting method (GC-FID, GC-SCD, Coulometric Karl-Fischer titration)	0.2 kg/kg to 0.4 kg/kg	0.00006 kg/kg to 0.0004 kg/kg	
	dibutyl sulfide	• Freezing point depression method • Subtracting method (GC-FID, GC-SCD, Coulometric Karl-Fischer titration)	0.995 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0001 kg/kg	
	1,4-dioxane	• Freezing point depression method	0.998 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0001 kg/kg	
	<i>tert</i> -butylmethylether	• Freezing point depression method	0.998 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0003 kg/kg	
	trichloroacetic acid	• Freezing point depression method • Titration	0.995 kg/kg to 1 kg/kg	0.002 kg/kg	
	3,5-bis(trifluoromethyl)benzoic acid	• Freezing point depression method • Coulometric titration • Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration, TG)	0.999 kg/kg to 1 kg/kg	0.0003 kg/kg to 0.0001 kg/kg	
	1,4-bis(trimethylsilyl)-2,3,5,6-tetrafluorobenzene	• Freezing point depression method • Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration, TG)	0.999 kg/kg to 1 kg/kg	0.0003 kg/kg to 0.0001 kg/kg	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
High purity organic materials	di- <i>n</i> -butyl phthalate	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	2024-11-01
	di-2-ethylhexyl phthalate	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	di- <i>n</i> -propyl phthalate	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.0006 kg/kg to 0.0002 kg/kg	
	di- <i>n</i> -pentyl phthalate	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.97 kg/kg to 1 kg/kg	0.006 kg/kg to 0.0002 kg/kg	
	di- <i>n</i> -hexyl phthalate	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.97 kg/kg to 1 kg/kg	0.006 kg/kg to 0.0002 kg/kg	
	dicyclohexyl phthalate	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	butyl benzyl phthalate	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.0015 kg/kg to 0.0002 kg/kg	
	simazine	• Subtracting method (HPLC-UV, GC-FID, GC-MS, Coulometric Karl-Fischer titration) • qNMR	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	thiuram	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	thiobencarb	• Freezing point depression method • qNMR • Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	4- <i>n</i> -nonylphenol	• Freezing point depression method	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.001 mol/mol	
	4- <i>t</i> -octylphenol	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	4- <i>t</i> -butylphenol	• Subtracting method (HPLC-UV, GC-FID, Coulometric Karl-Fischer titration)	0.98 kg/kg to 1 kg/kg	0.001 kg/kg to 0.0002 kg/kg	
	4- <i>n</i> -heptylphenol	• Freezing point depression method	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.001 mol/mol	
2,4-dichlorophenol	• Freezing point depression method	0.99 mol/mol to 1 mol/mol	0.005 mol/mol to 0.001 mol/mol		
Environmental matrix (fish oil)	<i>p,p'</i> -DDE	• ID-GC-MS	1 mg/kg to 10 mg/kg	0.014 mg/kg	
	<i>p,p'</i> -DDT	• ID-GC-MS	0.05 mg/kg to 0.5 mg/kg	0.0031 mg/kg	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Organic standard solution	<i>p,p'</i> -DDT/2,2,4-trimethylpentane	• Freezing point depression method • HPLC-UV • Gravimetric preparation	0.05 mg/kg to 20 mg/kg	7 % (relative)	2024-11-01
	<i>p,p'</i> -DDE/2,2,4-trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	0.5 mg/kg to 20 mg/kg	2 % (relative)	
	γ -HCH/2,2,4-trimethylpentane	• Subtracting method (GC-FID) • Gravimetric preparation	0.03 mg/kg to 20 mg/kg	1 % (relative)	
	<i>p,p'</i> -DDT + <i>p,p'</i> -DDE + <i>p,p'</i> -DDD + γ -HCH /2,2,4-trimethylpentane	• Freezing point depression method • HPLC-UV • GC-FID • Gravimetric preparation	<i>p,p'</i> -DDT : 0.05 mg/kg to 20 mg/kg <i>p,p'</i> -DDE : 0.5 mg/kg to 20 mg/kg <i>p,p'</i> -DDD : 0.5 mg/kg to 20 mg/kg γ -HCH : 0.03 mg/kg to 20 mg/kg	<i>p,p'</i> -DDT : 2 % to 1 % (relative) <i>p,p'</i> -DDE : 1 % to 0.5 % (relative) <i>p,p'</i> -DDD : 1% to 0.5 % (relative) γ -HCH : 2 % to 0.5 % (relative)	
	PCB28/2,2,4-trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	2 mg/kg to 50 mg/kg	1.7 % (relative)	
	PCB70/2,2,4-trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	2 mg/kg to 50 mg/kg	1.8 % (relative)	
	PCB105/2,2,4-trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	2 mg/kg to 50 mg/kg	2.4 % (relative)	
	PCB153/2,2,4-trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	2 mg/kg to 50 mg/kg	1.7 % (relative)	
	PCB170/2,2,4-trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	2 mg/kg to 50 mg/kg	2.0 % (relative)	
	PCB194/2,2,4-trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	2 mg/kg to 50 mg/kg	1.6 % (relative)	
	PCB28+PCB70+PCB105 +PCB153+PCB170+PCB194 /2,2,4 -trimethylpentane	• Freezing point depression method • GC-FID • Gravimetric preparation	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)	
	4-hydroxy-clomifene	• qNMR • qNMR/HPLC-UV • Gravimetric preparation	4-hydroxy-clomifene: 200 μ g/g to 300 μ g/g (<i>E</i>)-4-hydroxy-clomifene: 50 μ g/g to 200 μ g/g (<i>Z</i>)-4-hydroxy-clomifene: 50 μ g/g to 200 μ g/g	4-hydroxy-clomifene: 1.5 % (relative) (<i>E</i>)-4-hydroxy-clomifene: 1.6 % (relative) (<i>Z</i>)-4-hydroxy-clomifene: 1.6 % (relative)	
	3 β ,4 α -dihydroxy-5 α -androstane-17-one	• qNMR • qNMR/HPLC-UV • Gravimetric preparation	100 μ g/g to 170 μ g/g	1.4 % (relative)	
	sulfur in toluene (as sulfur)	• Freezing point depression method • Subtracting method (GC-FID, GC-FPD, Coulometric Karl-Fischer titration) • Gravimetric preparation	0.5 mg/kg to 10000 mg/kg	0.02 mg/kg to 10 mg/kg	
• Combustion-ultraviolet fluorescence method		10 μ g/kg to 500 μ g/kg	5 μ g/kg to 20 μ g/kg		
CRMs for thermal properties	cyclohexane (thermal analysis with thermal analyzer such as DSC)	• Adiabatic calorimetry	phase transition temperature 186 K to 280 K	0.04 K to 0.1 K	
		• Adiabatic calorimetry	phase transition enthalpy 30 J g ⁻¹ to 90 J g ⁻¹	0.7 J g ⁻¹ to 3 J g ⁻¹	
High purity organic materials	perfluorooctanoic acid	• Titration and • Subtracting method (LC-MS, Karl Fischer titration, TG)	0.95 kg/kg to 1 kg/kg	0.006 kg/kg to 0.002 kg/kg	
	chloroalkanes	• Subtracting method (GC-FID, HS-GC-MS, Karl Fischer titration, TG)	0.98 kg/kg to 1 kg/kg	0.005 kg/kg to 0.001 kg/kg	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Organic standard solution	benzo[a]pyrene/ 2,2,4-trimethylpentane	• Freezing point depression method • Gravimetric preparation	10 mg/kg to 200 mg/kg	4 % to 1 % (relative)	2024-11-01
	potassium perfluorooctanesulfonate /methanol	• Freezing point depression method • Gravimetric preparation	5 mg/kg to 100 mg/kg	4 % to 1 % (relative)	
Standard solution (water in organic solvent)	water	• Coulometric titration • Volumetric titration	0.01 g/kg to 10 g/kg	30 % to 0.1 % (relative)	
Food (pesticide in grain)	fenitrothion	• ID-GC-MS • ID-LC-MS	0.1 mg/kg to 1 mg/kg	20 % to 5 % (relative)	
	etofenprox	• ID-GC-MS • ID-LC-MS	0.1 mg/kg to 1 mg/kg	30 % to 5 % (relative)	
Food (pesticide in vegetable)	diazinon	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	40 % to 5 % (relative)	
	fenitrothion	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	20 % to 3 % (relative)	
	chlorpyrifos	• ID-GC-MS	1 mg/kg to 100 mg/kg	40 % to 5 % (relative)	
	permethrin	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	30 % to 4 % (relative)	
	cypermethrin	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	40 % to 5 % (relative)	
	etofenprox	• ID-GC-MS	1 mg/kg to 100 mg/kg	20 % to 3 % (relative)	
Food (pesticide in fruits)	diazinon	• ID-GC-MS	0.1 mg/kg to 10 mg/kg	20 % to 2 % (relative)	
	fenitrothion	• ID-GC-MS	0.1 mg/kg to 10 mg/kg	20 % to 2 % (relative)	
	permethrin	• ID-GC-MS	0.1 mg/kg to 10 mg/kg	20 % to 2 % (relative)	
	cypermethrin	• ID-GC-MS	0.1 mg/kg to 10 mg/kg	30 % to 3 % (relative)	
Food (pesticide in beans)	diazinon	• ID-GC-MS	0.001 mg/kg to 0.1 mg/kg	20 % to 2 % (relative)	
	fenitrothion	• ID-GC-MS	0.001 mg/kg to 0.2 mg/kg	20 % to 2 % (relative)	
	chlorpyrifos	• ID-GC-MS	0.001 mg/kg to 0.3 mg/kg	30 % to 3 % (relative)	
	permethrin	• ID-GC-MS	0.002 mg/kg to 0.1 mg/kg	20 % to 2 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Environmental matrix (trace elements in sediment)	Sb	• ICP-MS • ID-ICP-MS	0.1 mg/kg to 3 mg/kg	10 % to 2 % (relative)	2024-11-01
	Cd	• ID-ICP-MS • ICP-MS • GFAAS	0.1 mg/kg to 3 mg/kg	10 % to 2 % (relative)	
	Cu	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	5 mg/kg to 500 mg/kg	5 % to 1 % (relative)	
	Pb	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	2 mg/kg to 250 mg/kg	5 % to 1 % (relative)	
	Ni	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	5 mg/kg to 50 mg/kg	5 % to 2 % (relative)	
	Zn	• ID-ICP-MS • ICP-MS • ICP-OES	20 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	
	As	• ICP-MS • ICP-OES • GFAAS • HR-ICP-MS	1 mg/kg to 50 mg/kg	20 % to 2 % (relative)	
	Co	• ICP-MS • ICP-OES • GFAAS	1 mg/kg to 50 mg/kg	15 % to 2 % (relative)	
	Se	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.1 mg/kg to 5 mg/kg	20 % to 1 % (relative)	
	Cr	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	10 mg/kg to 500 mg/kg	10 % to 1 % (relative)	
	Hg	• ID-ICP-MS • ICP-MS • Heating evaporation-Gold amalgamation AAS	0.02 mg/kg to 5 mg/kg	15 % to 1 % (relative)	
	Ag	• ID-ICP-MS • ICP-MS	0.05 mg/kg to 2 mg/kg	4 % to 3 % (relative)	
	Mo	• ID-ICP-MS • ICP-MS	0.5 mg/kg to 20 mg/kg	7 % to 3 % (relative)	
	Sn	• ID-ICP-MS • ICP-MS	1 mg/kg to 50 mg/kg	5 % to 2 % (relative)	
Environmental (polychlorinated biphenyls in mineral oil)	PCB3	• ID-GC-MS	0.2 µg/kg to 10 mg/kg	50 % to 3 % (relative)	2024-11-01
	PCB8	• ID-GC-MS	0.2 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB28	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB52	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB101	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB118	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB138	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB153	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB180	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB194	• ID-GC-MS	0.1 µg/kg to 10 mg/kg	50 % to 3 % (relative)	
	PCB206	• ID-GC-MS	0.09 µg/kg to 10 mg/kg	50 % to 3 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Environmental matrix (fish tissue)	PCB28	• ID-GC-MS	1 µg/kg to 100 µg/kg	15 % to 2 % (relative)	2024-11-01
	PCB70	• ID-GC-MS	1 µg/kg to 10 µg/kg	15 % to 5 % (relative)	
	PCB105	• ID-GC-MS	1 µg/kg to 100 µg/kg	15 % to 2 % (relative)	
	PCB153	• ID-GC-MS	10 µg/kg to 200 µg/kg	10 % to 2 % (relative)	
	PCB170	• ID-GC-MS	0.1 µg/kg to 10 µg/kg	10 % to 4 % (relative)	
	<i>p,p'</i> -DDT	• ID-GC-MS	1 µg/kg to 10 µg/kg	10 % to 5 % (relative)	
	<i>p,p'</i> -DDE	• ID-GC-MS	10 µg/kg to 100 µg/kg	15 % to 5 % (relative)	
	<i>p,p'</i> -DDD	• ID-GC-MS	1 µg/kg to 10 µg/kg	10 % to 5 % (relative)	
	dieldrin	• ID-GC-MS	1 µg/kg to 10 µg/kg	10 % to 3 % (relative)	
	<i>trans</i> -nonachlor	• ID-GC-MS	1 µg/kg to 10 µg/kg	10 % to 4 % (relative)	
Environmental matrix (PAHs/dust)	fluorene	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	40 % to 10 % (relative)	2024-11-01
	anthracene	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	40 % to 10 % (relative)	
	fluoranthene	• ID-GC-MS	1 mg/kg to 1000 mg/kg	30 % to 10 % (relative)	
	pyrene	• ID-GC-MS	1 mg/kg to 1000 mg/kg	30 % to 10 % (relative)	
	benzo[<i>a</i>]anthracene	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	20 % to 10 % (relative)	
	benzo[<i>b</i>]fluoranthene	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	20 % to 10 % (relative)	
	benzo[<i>k</i>]fluoranthene	• ID-GC-MS	0.01 mg/kg to 10 mg/kg	20 % to 10 % (relative)	
	benzo[<i>a</i>]pyrene	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	30 % to 10 % (relative)	
	perylene	• ID-GC-MS	0.01 mg/kg to 10 mg/kg	30 % to 10 % (relative)	
	indeno[1,2,3- <i>cd</i>]pyrene	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	40 % to 10 % (relative)	
benzo[<i>ghi</i>]perylene	• ID-GC-MS	0.1 mg/kg to 100 mg/kg	20 % to 10 % (relative)		
Environmental matrix (toxic elements in tunnel dust)	Cr	• ID-ICP-MS • ICP-MS	5 mg/kg to 5 % (mass fraction)	10 % to 2 % (relative)	2024-11-01
	Ni	• ID-ICP-MS • ICP-MS • ICP-OES	5 mg/kg to 2 % (mass fraction)	5 % to 2 % (relative)	
	Pb	• ID-ICP-MS • ICP-MS • ICP-OES	2 mg/kg to 1 % (mass fraction)	5 % to 2 % (relative)	
	Mn	• ICP-MS • ICP-OES • GFAAS	2 mg/kg to 1 % (mass fraction)	5 % to 2 % (relative)	
	Cd	• ID-ICP-MS • ICP-MS	0.1 mg/kg to 0.1 % (mass fraction)	10 % to 2 % (relative)	
Environmental matrix (polychlorinated biphenyls / pesticide in biological sample)	PCB118	• ID-GC-MS	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	2024-11-01
	PCB138	• ID-GC-MS	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	
	PCB153	• ID-GC-MS	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	
	PCB194	• ID-GC-MS	5 ng/kg to 200 ng/kg	40 % to 10 % (relative)	
	acetamiprid	• ID-LC-MS	0.1 µg/kg to 2 µg/kg	50 % to 10 % (relative)	
	clothianidin	• ID-LC-MS	0.1 µg/kg to 2 µg/kg	50 % to 10 % (relative)	
	thiacloprid	• ID-LC-MS	0.1 µg/kg to 2 µg/kg	50 % to 10 % (relative)	
	thiamethoxam	• ID-LC-MS	0.1 µg/kg to 2 µg/kg	50 % to 10 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Environmental (polychlorinated biphenyls and organochlorine pesticides in sediment)	PCB3	• ID-GC-MS	0.1 µg/kg to 100 µg/kg	30 % to 5 % (relative)	2024-11-01
	PCB15	• ID-GC-MS	0.1 µg/kg to 100 µg/kg	20 % to 4 % (relative)	
	PCB28	• ID-GC-MS	1 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB31	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB70	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB101	• ID-GC-MS	1 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB105	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB138	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB153	• ID-GC-MS	1 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB170	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB180	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	PCB194	• ID-GC-MS	0.1 µg/kg to 100 µg/kg	20 % to 2 % (relative)	
	PCB206	• ID-GC-MS	0.1 µg/kg to 100 µg/kg	20 % to 2 % (relative)	
	PCB209	• ID-GC-MS	0.1 µg/kg to 100 µg/kg	20 % to 2 % (relative)	
	<i>p,p'</i> -DDT	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	<i>p,p'</i> -DDE	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
	<i>p,p'</i> -DDD	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)	
γ -HCH	• ID-GC-MS	0.5 µg/kg to 1000 µg/kg	20 % to 2 % (relative)		
Environmental (polycyclic aromatic hydrocarbons in sediment)	fluorene	• ID-GC-MS	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	2024-11-01
	phenanthrene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	
	anthracene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	fluoranthene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	20 % to 5 % (relative)	
	pyrene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	
	benzo[<i>c</i>]phenanthrene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	10 % to 5 % (relative)	
	benz[<i>a</i>]anthracene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	20 % to 10 % (relative)	
	chrysene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	10 % to 5 % (relative)	
	benzo[<i>b</i>]fluoranthene	• ID-GC-MS	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	benzo[<i>j</i>]fluoranthene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	benzo[<i>k</i>]fluoranthene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
	benzo[<i>a</i>]fluoranthene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	50 % to 10 % (relative)	
	benzo[<i>e</i>]pyrene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
	benzo[<i>a</i>]pyrene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	20 % to 5 % (relative)	
	perylene	• ID-GC-MS	100 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
	indeno[1,2,3- <i>cd</i>]pyrene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	40 % to 10 % (relative)	
	benzo[<i>ghi</i>]perylene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	30 % to 10 % (relative)	
dibenz[<i>a,h</i>]anthracene	• ID-GC-MS • ID-LC-MS	1 µg/kg to 100 mg/kg	50 % to 10 % (relative)		
Fuel (components in bioethanol fuel)	water	• Coulometric titration • Volumetric titration	100 mg/kg to 5000 mg/kg	2 % to 0.2 % (relative)	2024-11-01
	methanol	• ID-GC-MS • GC-FID	0.2 g/kg to 1 g/kg	10 % to 2 % (relative)	
	S	• Combustion-ultraviolet fluorescence method • Combustion-IC	1 mg/kg to 5 mg/kg	3 % (relative)	
	Cu	• ICP-MS • ID-ICP-MS • GFAAS	0.0001 mg/kg to 500 mg/kg	10 % to 1 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Fuel (components in biodiesel fuel)	water	• Coulometric titration • Volumetric titration	300 mg/kg to 1000 mg/kg	10 % to 5 % (relative)	2024-11-01
	Na	• ICP-MS/MS • HR-ICP-MS • FAAS	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	Mg	• ID-ICP-MS/MS • ICP-MS/MS	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	K	• ID-ICP-MS/MS • ICP-MS/MS	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	Ca	• ID-ICP-MS/MS • ICP-MS/MS	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	P	• ICP-MS/MS • FI-ICP-MS • ICP-OES	0.5 mg/kg to 20 mg/kg	20 % to 5 % (relative)	
	S	• ID-ICP-MS/MS • ICP-MS/MS • Combustion-IC	2 mg/kg to 50 mg/kg	10 % to 5 % (relative)	
Environmental matrix (river water and drinking water)	Al	• ICP-MS • ICP-MS/MS • GFAAS	1 µg/kg to 100 µg/kg	8 % to 1 % (relative)	
	Sb	• ID-ICP-MS • ICP-MS • HR-ICP-MS • ICP-MS/MS	0.001 µg/kg to 10 µg/kg	5 % to 1 % (relative)	
	As	• ICP-MS • ICP-MS/MS • GFAAS	0.05 µg/kg to 50 µg/kg	15 % to 1 % (relative)	
	Ba	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.5 µg/kg to 50 µg/kg	2 % to 1 % (relative)	
	B	• ID-ICP-MS • ICP-MS • ICP-MS/MS	1 µg/kg to 100 µg/kg	5 % to 1 % (relative)	
	Cd	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.001 µg/kg to 10 µg/kg	15 % to 2 % (relative)	
	Cr	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.05 µg/kg to 50 µg/kg	8 % to 1 % (relative)	
	Cu	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.05 µg/kg to 50 µg/kg	15 % to 1 % (relative)	
	Fe	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.1 µg/kg to 100 µg/kg	10 % to 1 % (relative)	
	Pb	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.001 µg/kg to 10 µg/kg	15 % to 1 % (relative)	
	Mn	• ICP-MS • ICP-MS/MS • GFAAS	0.01 µg/kg to 50 µg/kg	15 % to 1 % (relative)	
	Mo	• ID-ICP-MS • ICP-MS • HR-ICP-MS • ICP-MS/MS	0.05 µg/kg to 10 µg/kg	2 % to 1 % (relative)	
	Ni	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.01 µg/kg to 50 µg/kg	5 % to 1 % (relative)	
	Se	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.1 µg/kg to 50 µg/kg	10 % to 1 % (relative)	
	Zn	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.05 µg/kg to 50 µg/kg	10 % to 1 % (relative)	
	Na	• ICP-MS • ICP-OES • MP-AES	1 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	K	• ICP-MS • ICP-OES • MP-AES	0.2 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	Mg	• ICP-MS • ICP-OES • MP-AES	0.2 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	Ca	• ICP-MS • ICP-OES • MP-AES	1 mg/kg to 50 mg/kg	5 % to 1 % (relative)	
	Rb	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.05 µg/kg to 100 µg/kg	5 % to 1 % (relative)	
Sr	• ID-ICP-MS • ICP-MS • ICP-MS/MS	0.05 µg/kg to 200 µg/kg	5 % to 1 % (relative)		
P	• ICP-MS	1 µg/kg to 100 µg/kg	5 % to 1 % (relative)		

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Environmental matrix (sea water)	Cr	• ID-ICP-MS • ICP-MS	1 µg/kg to 20000 µg/kg	10 % to 2 % (relative)	2024-11-01
	Mn	• ICP-MS • GFAAS	1 µg/kg to 20000 µg/kg	10 % to 2 % (relative)	
	Fe	• ID-ICP-MS • ICP-MS	1 µg/kg to 20000 µg/kg	10 % to 2 % (relative)	
	Ni	• ID-ICP-MS • ICP-MS	1 µg/kg to 20000 µg/kg	15 % to 2 % (relative)	
	Cu	• ID-ICP-MS • ICP-MS	1 µg/kg to 20000 µg/kg	10 % to 2 % (relative)	
	Zn	• ID-ICP-MS • ICP-MS	1 µg/kg to 20000 µg/kg	20 % to 2 % (relative)	
	As	• ICP-MS • GFAAS	1 µg/kg to 20000 µg/kg	15 % to 2 % (relative)	
	Se	• ID-ICP-MS • ICP-MS	1 µg/kg to 20000 µg/kg	15 % to 2 % (relative)	
	Cd	• ID-ICP-MS • ICP-MS	0.3 µg/kg to 20000 µg/kg	10 % to 2 % (relative)	
	Pb	• ID-ICP-MS • ICP-MS	1 µg/kg to 20000 µg/kg	10 % to 2 % (relative)	
	dissolved silica	• Colorimetry • IC • IC-ID-ICP-MS	0.03 mg/kg to 5 mg/kg	12 % to 1 % (relative)	
	nitrate ion	• Colorimetry • IC	0.8 mg/kg to 3 mg/kg	3 % to 1 % (relative)	
	nitrite ion	• Colorimetry • IC	0.01 mg/kg to 0.3 mg/kg	20 % to 5 % (relative)	
	phosphate ion	• Colorimetry	0.1 mg/kg to 0.3 mg/kg	5 % to 1 % (relative)	
Standard solution for chemical speciation	arsenobetaine	• HPLC-ICP-MS • ICP-MS • ICP-OES • GFAAS	1 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	
	arsenate(As(V))	• HPLC-ICP-MS • ICP-MS • ICP-OES • GFAAS	1 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	
	dimethylarsenic acid	• HPLC-ICP-MS • ICP-MS • ICP-OES • GFAAS	1 mg/kg to 1000 mg/kg	5 % to 1 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Food (trace elements and arsenic compounds in grains and beans)	Cr	• ID-HR-ICP-MS • ICP-MS	0.01 mg/kg to 10 mg/kg	15 % to 2 % (relative)	2024-11-01
	Mn	• ICP-MS • HR-ICP-MS • ICP-OES • GFAAS • MP-AES	0.1 mg/kg to 50 mg/kg	10 % to 1.5 % (relative)	
	Fe	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	0.1 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	Ni	• ID-ICP-MS • ICP-MS	0.01 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
	Cu	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	0.1 mg/kg to 50 mg/kg	10 % to 1.5 % (relative)	
	Zn	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	0.1 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	As	• ICP-MS • HR-ICP-MS • GFAAS	0.005 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Rb	• ID-ICP-MS • ICP-MS	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Sr	• ID-ICP-MS • ICP-MS	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Cd	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	0.005 mg/kg to 5 mg/kg	7 % to 2 % (relative)	
	Mo	• ID-ICP-MS • ICP-MS	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Ba	• ID-ICP-MS • ICP-MS	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Pb	• ID-HR-ICP-MS • ICP-MS	0.001 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
	Na	• ICP-OES • FAAS • Flame photometry	0.1 mg/kg to 50 mg/kg	15 % to 2 % (relative)	
	Mg	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS • MP-AES	10 mg/kg to 5000 mg/kg	5 % to 1.2 % (relative)	
	K	• ICP-OES • FAAS • Flame photometry	100 mg/kg to 50000 mg/kg	5 % to 2 % (relative)	
	Ca	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS • Flame photometry • MP-AES	5 mg/kg to 5000 mg/kg	5 % to 1.5 % (relative)	
	P	• ICP-MS • HR-ICP-MS • ICP-OES	100 mg/kg to 9000 mg/kg	10 % to 2 % (relative)	
	arsenite (As(III))	• HPLC-ICP-MS	0.005 mg/kg to 50 mg/kg (as As)	8 % to 2 % (relative)	
	arsenate (As(V))	• HPLC-ICP-MS	0.005 mg/kg to 50 mg/kg (as As)	8 % to 2 % (relative)	
dimethylarsenic acid	• HPLC-ICP-MS	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	• ID-ICP-MS • ICP-MS • HR-ICP-MS • GFAAS	0.2 mg/kg to 5 mg/kg	15 % to 3 % (relative)	
	Mn	• ICP-MS • HR-ICP-MS • GFAAS	0.1 mg/kg to 5 mg/kg	10 % to 1.5 % (relative)	
	Fe	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	1 mg/kg to 100 mg/kg	10 % to 3 % (relative)	
	Ni	• ID-ICP-MS • ICP-MS • HR-ICP-MS • GFAAS	0.2 mg/kg to 20 mg/kg	15 % to 3 % (relative)	
	Cu	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	0.2 mg/kg to 100 mg/kg	10 % to 1.5 % (relative)	
	Zn	• ID-ICP-MS • ICP-MS • ICP-OES	1 mg/kg to 100 mg/kg	10 % to 1.5 % (relative)	
	As	• ICP-MS • HR-ICP-MS • ICP-OES • GFAAS	1 mg/kg to 100 mg/kg	10 % to 2 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Food (trace elements, arsenobetaine and methylmercury in fish, shellfish, and cephalopoda tissues)	Se	• ID-ICP-MS • ICP-MS • GFAAS	0.1 mg/kg to 10 mg/kg	15 % to 3 % (relative)	2024-11-01
	Hg	• ID-ICP-MS • ICP-MS • Heating evaporation Gold amalgamation AAS	0.1 mg/kg to 10 mg/kg	10 % to 1 % (relative)	
	Na	• ICP-OES • FAAS • Flame photometry	1 mg/kg to 100 g/kg	10 % to 2 % (relative)	
	Mg	• ICP-MS • ICP-OES • FAAS	0.5 mg/kg to 100 g/kg	5 % to 1 % (relative)	
	K	• ICP-OES • FAAS • Flame photometry	1 mg/kg to 100 g/kg	10 % to 2 % (relative)	
	Ca	• ICP-MS • ICP-OES • FAAS • Flame photometry	0.1 mg/kg to 100 g/kg	15 % to 3 % (relative)	
	arsenobetaine	• HPLC-ICP-MS • ID-LC-MS	1 mg/kg to 100 mg/kg (as As)	10 % to 2 % (relative)	
	methylmercury	• ID-GC-ICP-MS	0.1 mg/kg to 10 mg/kg (as Hg)	5 % to 1 % (relative)	
	Sr	• ID-ICP-MS • ICP-MS • ICP-OES • GFAAS	0.02 mg/kg to 10 mg/kg	10 % to 1.2 % (relative)	
	Cd	• ID-ICP-MS • ID-HR-ICP-MS • ICP-MS • ICP-OES • GFAAS	0.01 mg/kg to 5 mg/kg	10 % to 1.5 % (relative)	
	P	• ICP-MS • HR-ICP-MS • ICP-OES	1 g/kg to 100 g/kg	5 % to 2 % (relative)	
Food (trace elements and arsenic compounds in algae)	Na	• ICP-OES • FAAS • Flame photometry	0.5 g/kg to 100 g/kg	10 % to 1 % (relative)	
	K	• ICP-OES • FAAS • Flame photometry	1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Mg	• ICP-MS • ICP-OES • FAAS	0.1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Ca	• ICP-MS • ICP-OES • FAAS • Flame photometry	0.5 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Sr	• ICP-MS • ID-ICP-MS • ICP-OES • GFAAS	0.1 g/kg to 50 g/kg	10 % to 1 % (relative)	
	P	• ICP-MS • HR-ICP-MS • ICP-OES	0.01 g/kg to 50 g/kg	10 % to 1 % (relative)	
	Al	• ICP-MS • ICP-OES • GFAAS	10 mg/kg to 1000 mg/kg	10 % to 3 % (relative)	
	As	• ICP-MS • HR-ICP-MS • ICP-OES • GFAAS	0.5 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	Ba	• ICP-MS • ID-ICP-MS	0.5 mg/kg to 100 mg/kg	10 % to 1 % (relative)	
	Cd	• ICP-MS • ID-ICP-MS • ICP-OES • GFAAS	0.01 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Co	• ICP-MS • HR-ICP-MS • ICP-OES • GFAAS	0.1 mg/kg to 10 mg/kg	10 % to 3 % (relative)	
	Cr	• ID-ICP-MS • HR-ICP-MS • ICP-OES	0.1 mg/kg to 50 mg/kg	15 % to 2 % (relative)	
	Cu	• ICP-MS • ID-ICP-MS • ICP-OES • GFAAS	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Fe	• ICP-MS • ID-ICP-MS • ICP-OES • GFAAS	10 mg/kg to 1000 mg/kg	10 % to 2 % (relative)	
	Mn	• ICP-MS • HR-ICP-MS • ICP-OES • GFAAS	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Ni	• ICP-MS • ID-ICP-MS • ICP-OES	0.1 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
	Pb	• ICP-MS • ID-ICP-MS • ICP-OES	0.01 mg/kg to 10 mg/kg	15 % to 2 % (relative)	
Zn	• ICP-MS • ID-ICP-MS • ICP-OES • GFAAS	0.1 mg/kg to 100 mg/kg	10 % to 2 % (relative)		

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods* ¹	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Food (trace elements and arsenic compounds in algae)	arsenate (As(V))	• HPLC-ICP-MS	0.5 mg/kg to 100 mg/kg (as As)	10 % to 2 % (relative)	2024-11-01
	arsenosugar-408 (arsenosugar-SO ₄)	• HPLC-ICP-MS	0.1 mg/kg to 10 mg/kg (as As)	10 % to 2 % (relative)	
	arsenosugar-328 (arsenosugar-OH)	• HPLC-ICP-MS	0.1 mg/kg to 10 mg/kg (as As)	10 % to 2 % (relative)	
	Hg	• ID-HR-ICP-MS	0.01 mg/kg to 0.1 mg/kg	10 % to 2 % (relative)	
Environmental matrix (trace elements in plant leaves)	Al	• ICP-MS • HR-ICP-MS • ICP-OES • GFAAS	5 mg/kg to 5000 mg/kg	5 % to 1 % (relative)	
	B	• ID-ICP-MS • ICP-MS • HR-ICP-MS	1 mg/kg to 500 mg/kg	10 % to 2 % (relative)	
	Ba	• ID-ICP-MS • ICP-MS • HR-ICP-MS • ICP-OES	1 mg/kg to 500 mg/kg	10 % to 1 % (relative)	
	Ca	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS	200 mg/kg to 20000 mg/kg	5 % to 1 % (relative)	
	Cd	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.005 mg/kg to 50 mg/kg	10 % to 3 % (relative)	
	Co	• ICP-MS • HR-ICP-MS	0.01 mg/kg to 5 mg/kg	10 % to 2 % (relative)	
	Cu	• ID-ICP-MS • ICP-MS • HR-ICP-MS • ICP-OES • GFAAS	0.5 mg/kg to 500 mg/kg	5 % to 1 % (relative)	
	Fe	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.5 mg/kg to 2000 mg/kg	10 % to 1 % (relative)	
	K	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS	100 mg/kg to 30000 mg/kg	5 % to 1 % (relative)	
	Li	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Mg	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS	20 mg/kg to 5000 mg/kg	5 % to 1 % (relative)	
	Mn	• ICP-MS • HR-ICP-MS • ICP-OES • GFAAS	5 mg/kg to 10000 mg/kg	5 % to 1 % (relative)	
	Na	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS	0.5 mg/kg to 100 mg/kg	20 % to 1 % (relative)	
	Ni	• ID-ICP-MS • ICP-MS • HR-ICP-MS • ICP-OES	0.3 mg/kg to 100 mg/kg	10 % to 1 % (relative)	
	P	• ICP-MS • HR-ICP-MS • ICP-OES	150 mg/kg to 10000 mg/kg	10 % to 1 % (relative)	
Pb	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.01 mg/kg to 100 mg/kg	20 % to 3 % (relative)		
Rb	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.5 mg/kg to 200 mg/kg	10 % to 1 % (relative)		
Sr	• ID-ICP-MS • ICP-MS • HR-ICP-MS • ICP-OES	0.5 mg/kg to 200 mg/kg	5 % to 1 % (relative)		
Zn	• ID-ICP-MS • ICP-MS • HR-ICP-MS	1 mg/kg to 500 mg/kg	10 % to 1 % (relative)		

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Food (trace elements in milk and dairy products)	Ca	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS • FAES	0.5 g/kg to 100 g/kg	10 % to 1 % (relative)	2024-11-01
	Fe	• ID-ICP-MS • ICP-MS • ICP-OES	0.01 g/kg to 10 g/kg	10 % to 2 % (relative)	
	K	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS • FAES	0.1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Mg	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS	0.1 g/kg to 100 g/kg	10 % to 1 % (relative)	
	Na	• ICP-MS • HR-ICP-MS • ICP-OES • FAAS • FAES	0.01 g/kg to 50 g/kg	10 % to 1 % (relative)	
	P	• ICP-MS • HR-ICP-MS • ICP-OES	0.1 g/kg to 50 g/kg	10 % to 1 % (relative)	
	Ba	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.05 mg/kg to 10 mg/kg	10 % to 1 % (relative)	
	Cu	• ID-ICP-MS • ICP-MS • HR-ICP-MS • GFAAS	0.5 mg/kg to 100 mg/kg	10 % to 2 % (relative)	
	Mn	• ICP-MS • HR-ICP-MS • GFAAS	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Mo	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.02 mg/kg to 10 mg/kg	10 % to 2 % (relative)	
	Rb	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.1 mg/kg to 500 mg/kg	10 % to 2 % (relative)	
	Sr	• ID-ICP-MS • ICP-MS • HR-ICP-MS	0.1 mg/kg to 50 mg/kg	10 % to 2 % (relative)	
	Zn	• ID-ICP-MS • ICP-MS • HR-ICP-MS • ICP-OES	0.1 mg/kg to 1000 mg/kg	10 % to 2 % (relative)	
High purity organic materials	creatinine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	urea	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	hydrocortisone	• Subtracting method	0.990 kg/kg to 1 kg/kg	0.001 kg/kg	
	isoleucine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	phenylalanine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	valine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	proline	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	alanine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	leucine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	lysine monohydrochloride	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	arginine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	uric acid	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	triolein	• qNMR • Subtraction method	0.990 kg/kg to 1 kg/kg	0.001 kg/kg	
	triglyceride	• qNMR • Subtraction method	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	glycine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	glutamic acid	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	aspartic acid	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	tyrosine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	histidine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg	
	serine	• Neutralization titration • Nitrogen determination	0.990 kg/kg to 1 kg/kg	0.001 kg/kg	
threonine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg		
methionine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg		
cystine	• Neutralization titration • Nitrogen determination	0.995 kg/kg to 1 kg/kg	0.001 kg/kg		

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Organic standard solution	C-reactive protein	•ID-LC-MS	10 µmol/kg to 50 µmol/kg	2 % (relative)	2024-11-01
	total deoxyribonucleic acid (DNA) less than 650 bp	•ID-LC-MS • ICP-MS	0.5 ng/µL to 200 ng/µL	5 % (relative)	
	C-peptide	•ID-LC-MS	0.08 g/L to 1 g/L	3 % (relative)	
	total C-peptide (mixture of C-peptide, deamidated C-peptide, and pyroglutamylated C-peptide)	•ID-LC-MS	0.08 g/L to 1 g/L	3 % (relative)	
	total ribonucleic acid (RNA) less than 1100 bases	•ID-LC-MS • ICP-MS	10 ng/µL to 200 ng/µL	4 % (relative)	
	albumin	•ID-LC-MS	1 g/L to 100 g/L	1.6 % (relative)	
	okadaic acid	• qNMR • Gravimetric preparation	0.5 µg/mL to 10 µg/mL	4 % (relative)	
	dinophysistoxin-1	• qNMR • Gravimetric preparation	0.5 µg/mL to 10 µg/mL	1.6 % (relative)	
	monoclonal antibody	•ID-LC-MS	0.5 g/L to 100 g/L	2.6 % (relative)	
Environmental matrix (food)	okadaic acid	•LC-MS	0.01 mg/kg to 10 mg/kg	10 % (relative)	
	dinophysistoxin-1	•LC-MS	0.01 mg/kg to 10 mg/kg	10 % (relative)	
Steroids in serum	cortisol (hydrocortisone)	•ID-LC-MS	15 µg/L to 250 µg/L	3 % to 2 % (relative)	
	aldosterone	•ID-LC-MS	100 pg/mL to 1000 pg/mL	5 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Molecular weight of polymer	poly (ethylene glycol) nonylphenyl ether (mass-average molecular mass, number-average molecular mass)	•SFC	600 to 700	3 % (relative)	
	poly (ethylene glycol) nonylphenyl ether (mass fraction and mole fraction of each degree of polymerization)	•SFC	1×10^{-4} to 1	5 % (relative)	
	polystyrene (mass-average molecular mass, number-average molecular mass, peak-average molecular mass)	•SFC	400 to 2600	0.5 % (relative)	
	polystyrene (polydispersity)	•SFC	1.05 to 1.20	1.5 % (relative)	
	polystyrene (mass fraction and mole fraction of each degree of polymerization)	•SFC	2×10^{-5} to 1	2 % (relative)	
	poly (ethylene glycol) (mass-average molecular mass, number-average molecular mass)	•SFC	350 to 1700	1 % (relative)	
	poly (ethylene glycol) (mass fraction and mole fraction of each degree of polymerization)	•SFC	3×10^{-5} to 1	1 % (relative)	
	monodisperse polystyrene (mass-average molar mass)	•Static light scattering (SLS)	1×10^5 to 1×10^6	5 % (relative)	
	poly (ethylene glycol) 23mer (mass fraction)	•SFC	0.99 to 1	0.1 % (relative)	
Particle reference material	polystyrene latex nanoparticle (light scattering intensity averaged diameter)	• Dynamic light scattering (DLS)	100 nm to 300 nm	1 % (relative)	
Polymer reference material (polymer: organic compounds)	polybrominated diphenyl ether in plastics (polystyrene, polyvinyl chloride)	• ID-GC-MS • HPLC	50 mg/kg to 1500 mg/kg	5 % to 2 % (relative)	
	plasticizers (dimethyl phthalate, diethyl phthalate, di- <i>n</i> -propyl phthalate, di- <i>i</i> -butyl phthalate, di- <i>n</i> -butyl phthalate, di- <i>n</i> -pentyl phthalate, di- <i>n</i> -hexyl phthalate, dicyclohexyl phthalate, di- <i>n</i> -heptyl phthalate, butyl benzyl phthalate, bis(2-ethylhexyl) phthalate, bis(<i>n</i> -octyl) phthalate) in plastics (polystylen, polypropylene, polyvinyl chloride)	• ID-GC-MS • HPLC	50 mg/kg to 1500 mg/kg	3 % to 1.5 % (relative)	
Polymer reference material (Raman shift)	Raman shift	•Raman spectroscopy	$300 \text{ cm}^{-1} \sim 3500 \text{ cm}^{-1}$	0.28 cm^{-1}	
Polymer (perfluoroalkyl substances in polymer)	perfluorooctanesulfonic acid and its salts	•ID-LC-MS/MS	10 mg/kg to 100 mg/kg	20 % to 10 % (relative)	
Positron lifetime	positron lifetime in solids	• Positron annihilation lifetime spectroscopy	0.1 ns to 20 ns	2 % (relative)	
Steel	chromium	• Titration • EPMA	mass fraction 20 % to 40 %	0.1 % (relative)	
	nickel	• Titration • EPMA	mass fraction 15 % to 70 %	0.1 % (relative)	
	iron	• Titration • EPMA	mass fraction 5 % to 70 %	0.1 % (relative)	
	carbon	• Gravimetric analysis • EPMA	mass fraction 0.05 % to 1.0 %	10.0 % to 1.0 % (relative)	

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Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods * 1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Thin film	film thickness	• X-ray reflectivity	each layer 1 nm to 200 nm (total film thickness 3 nm to 200 nm or less)	0.27 % to 0.06 % (relative)	2024-11-01
	arsenic	• Instrumental Neutron Activation Analysis • ICP-MS	0.01 g/kg to 1.6 g/kg	2.4 % (relative)	
Image sharpness evaluation	dot pitch	• SEM	70 nm to 6000 nm	1.2 % (relative)	
Thick film	film thickness	• SEM	70 nm to 6000 nm	1.2 % (relative)	

Subcategory	Calibration and Measurement Capabilities				Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
Thermophysical reference materials	Thermal expansion	· Laser interferometric thermal expansion measurement method	$-0.5 \times 10^{-6} \text{ K}^{-1}$ to $20 \times 10^{-6} \text{ K}^{-1}$ (Temperature range: 15 K to 1100 K)	$0.005 \times 10^{-6} \text{ K}^{-1}$	2024-11-01
	Thermal diffusivity	· Laser flash method	$5 \times 10^{-7} \text{ m}^2 \text{ s}^{-1}$ to $2 \times 10^{-4} \text{ m}^2 \text{ s}^{-1}$ (Temperature range: 300 K to 1500 K)	3 % (relative)	
	Specific heat capacity	· Adiabatic calorimetry · Differential Scanning calorimetry	$0.07 \text{ J K}^{-1} \text{ g}^{-1}$ to $1.8 \text{ J K}^{-1} \text{ g}^{-1}$ (Temperature range: 50 K to 900 K)	1 % (relative)	
	Thermal conductivity	The product of thermal diffusivity, specific heat capacity and density (Thermal diffusivity: · laser flash method · pulse heating thermorefectance method Specific heat capacity : · Adiabatic calorimetry · Differential Scanning calorimetry Density: dimensions and weight)	$1 \text{ W}/(\text{m} \cdot \text{K})$ to $200 \text{ W}/(\text{m} \cdot \text{K})$ (Temperature range : 300 K to 900 K)	5 % (relative)	
	Thermal diffusivity	· Pulse heating thermorefectance method	$3 \times 10^{-6} \text{ m}^2 \text{ s}^{-1}$ to $4 \times 10^{-5} \text{ m}^2 \text{ s}^{-1}$ (Measurement environment temperature : 5 °C to 35 °C)	6 % (relative)	

Subcategory	Calibration and Measurement Capabilities					Date of Accreditation
	Instrument or Artefact	Calibration Methods *1	Measurand Level or Range	Measurement Conditions / Independent Variable (Optional)	Expanded Uncertainty (Level of Confidence Approximately 95 %)	
High-purity organic reference materials	Purity determination by nuclear magnetic resonance spectroscopy and freezing-point depression method	•qNMR •Freezing-point depression method	0.980 kg/kg to 1.000 kg/kg		0.002 kg/kg	2024-11-01
	Purity determination by nuclear magnetic resonance spectroscopy (including purity verification by gas chromatography)	•qNMR	0.900 kg/kg to 1.000 kg/kg		0.002 kg/kg	
	Purity determination by nuclear magnetic resonance spectroscopy (including purity verification by high-performance liquid chromatography)	•qNMR	0.900 kg/kg to 1.000 kg/kg		0.002 kg/kg	
	Purity determination by freezing-point depression method (including purity verification by gas chromatography)	•Freezing-point depression method	0.980 kg/kg to 1.000 kg/kg		0.002 kg/kg	
	Purity determination by freezing-point depression method (including purity verification by high-performance liquid chromatography)	•Freezing-point depression method	0.980 kg/kg to 1.000 kg/kg		0.002 kg/kg	
	Purity determination by nuclear magnetic resonance spectroscopy and titrimetry	•qNMR •Titrimetry	0.600 kg/kg to 1.000 kg/kg	Total content of organic compounds except analyte shall be 0.1 kg/kg or less	0.002 kg/kg	

*1

CRDS :	Cavity ring down spectroscopy
EPMA :	Electron probe microanalysis
DLS :	Dynamic light scattering
FAAS :	Flame atomic absorption spectrometry
FAES :	Flame atomic emission spectrometry
FI-ICP-MS :	Flow injection-inductively coupled plasma mass spectrometry
FT-IR :	Fourier transform infrared spectrometry
GC :	Gas chromatography
GC-ECD :	Gas chromatography/Electron capture detector
GC-FID :	Gas chromatography/Flame Ionization detector
GC-FPD :	Gas chromatography/Flame photometric detector
GC-MS :	Gas chromatography/Mass spectrometry
GC-PID :	Gas chromatography/Photo ionization detector
GC-SCD :	Gas chromatography/Sulfur chemiluminescence detector
GC-TCD :	Gas chromatography/Thermal conductivity detector
GFAAS :	Graphite furnace atomic absorption spectrometry
HPLC :	High performance liquid chromatography
HPLC-CAD	High performance liquid chromatography/Charged aerosol detector
HPLC-ICP-MS :	High performance liquid chromatography/inductively coupled plasma mass spectrometry
HPLC-UV	High performance liquid chromatography/Ultraviolet-visible absorption detector
HS- :	Head space-
HR-ICP-MS :	High-resolution inductively coupled plasma mass spectrometry
IC :	Ion chromatography
ICP-MS :	Inductively coupled plasma mass spectrometry
ICP-MS/MS :	Inductively coupled plasma tandem mass spectrometry
ICP-OES :	Inductively coupled plasma optical emission spectrometry
ID-GC-MS :	Isotope dilution-gas chromatography/mass spectrometry
ID-GC-ICP-MS :	Isotope dilution-gas chromatography/Inductively coupled plasma mass spectrometry
ID-HR-ICP-MS :	Isotope dilution-high-resolution inductively coupled plasma mass spectrometry
ID-HPLC-ICP-MS :	Isotope dilution-liquid chromatography/Inductively coupled plasma mass spectrometry
ID-ICP-MS :	Isotope dilution-inductively coupled plasma mass spectrometry
ID-ICP-MS/MS :	Isotope dilution-inductively coupled plasma tandem mass spectrometry
ID-LC-MS :	Isotope dilution-liquid chromatography/mass spectrometry
ID-LC-MS/MS :	Isotope dilution-liquid chromatography/tandem mass spectrometry
LC-MS :	Liquid chromatography/mass spectrometry
MC-ICP-MS :	Multicollector inductively coupled plasma mass spectrometry
MP-AES :	Microwave plasma atomic emission spectrometry
qNMR :	Quantitative nuclear magnetic resonance spectroscopy
SEM :	Scanning electron microscopy
SFC :	Supercritical fluid chromatography
SLS :	Static light scattering
TG :	Thermogravimetry

(End of Attachment)