



SCOPE OF ACCREDITATION TO ISO 17034:2016

SCP SCIENCE
 21800 Clark Graham
 Baie d'Urfe, Quebec H9X 4B6
 CANADA
 David Smith Phone: 514 457 0701
 dsmith@scpscience.com

REFERENCE MATERIAL PRODUCER

Valid To: November 30, 2019

Certificate Number: 2885.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this Reference Material Producer for the production of certified reference materials and reference materials of the following categories:

Category and Sub-Category of Reference Material ²	Test, Analysis, Measurement ¹ (Including ranges and uncertainties)	Method	Measurement Technique (Where appropriate)
Certified Reference Materials:			
Category A2.6 Pure Chemicals Aqueous Trace Metals Standards Single element, stock and custom blends containing the following elements: (Al, Sb, As, B, Ba, Be, Bi, Cd, Ca, Ce, Cs, Cr, Co, Cu, Dy, Er, Eu, Gd, Ga, Ge, Au, Hf, Ho, In, Ir, Fe, La, Pb, La, Li, Lu, Mg, Mn, Hg, Mo, Nd, Ni, Nb, Os, Pd, P, Pt, K, Pr, Re, Rh, Rb, Ru, Sm, Sc, Se, Si, Ag, Na, Sr, S, Ta, Te, Tb, Tl, Th, Tm, Sn, Ti, W, U, V, Yb, Y, Zn, Zr)	Stock single elements at 1000, (10 000 and 50 000) µg/ml Stock and custom blends from (0.001 to 50 000) µg/ml Typical uncertainty less than 1 %.	EPA 200.7 Modified EPA 200.8 Modified	ICP-AES / ICP - MS

Category and Sub-Category of Reference Material ²	Test, Analysis, Measurement ¹ (Including ranges and uncertainties)	Method	Measurement Technique (Where appropriate)
Certified Reference Materials:			
Category A2.6 Pure Chemicals Aqueous Anions and Cations (Acetate, Ammonia as N, Ammonium, Bromate, Bromide, Chlorate, Chloride, Fluoride, Formate, Nitrate, Nitrate as N, Nitrite, Nitrite as N, Oxalate, Phosphate, Phosphate as P, Sulfate, Sulfate as S)	Stock single elements at 1000, (10 000 and 50 000) µg/ml Stock and custom blends from (10 to 1000) µg/ml Typical uncertainty less than 1 %.	Standard Method 4110 Modified	Ion Chromatography
(Chromate, Molybdate, Perchlorate, Barium, Calcium, Copper, Iron, Lithium, Magnesium, Manganese, Nickel, Potassium, Sodium, Strontium, Zinc)		EPA 200.7 Modified	ICP-AES
(Benzoate, Butyrate, Caproate, Chloroacetate, Citrate, Glycolate, Glyoxylate, Isobutyrate, Isocaproate, Isovalerate, Lactate, Propionate, Valerate)		In-house Test Method QC-MET021-ABT	Titration
Category A9.1 pH Standards	(1 to 13) pH units Typical uncertainty less than 1 %.	EPA 150.1 Modified	Potentiometry
Category A9.3 Conductivity Standards	(5 to 300 000) µS Typical uncertainty less than 1 %.	EPA 120.1 Modified	Electrochemical

Category and Sub-Category of Reference Material²	Test, Analysis, Measurement¹ (Including ranges and uncertainties)	Method	Measurement Technique (Where appropriate)
Certified Reference Materials:			
Category A6.1 Metallo-organic compounds and A6.2 Wear metals in oil Single element, stock and custom blends containing the following elements: (Ag, Al, As, B, Ba, Be, Bi, Ca, Ce, Cd, Cl, Co, Cr, Cu, Fe, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Se, Si, Sn, Sr, Ti, V, W, Y, Zn, Zr)	Stock single elements at 100, 1000, 2000 and 5000 µg/g Stock and custom blends from (0.5 to 50 000) µg/g. Typical uncertainty less than 1 %.	EPA 200.7 Modified	ICP-AES
Category A.6.1 Metallo-organic compounds: Sulfur in mineral oil, diesel, residual oil, isooctane, biodiesel, xylene, ethanol, crude oil and Premisolv	Stock and custom single element standards from (0 to 60 000) µg/g Typical uncertainty less than 1 %.	ASTM D5453	UV-F
Category C6.2 Viscosity Standards	(2 to 30 000) mm ² /s (Centistokes) at 100 °F (37.78 °C) - Kinematic Typical uncertainty less than 1 %.	ASTM D445/446	Master Viscometer
Total Acid Number Standards (TAN)	(0.05 to 50 mg) KOH/g Typical uncertainty 2 %.	ASTM D664	Potentiometric Titration
Total Alkalinity	(25 to 10 000) ppm as CaCO ₃ Typical uncertainty less than 1 %	Standard Method 2320B Modified	Titration
Hardness	(5 to 10 000) ppm as CaCO ₃ Typical uncertainty less than 1 %	Standard Method 2340B	Calculation
Total Base Number Standards (TBN)	(1 to 150) mg KOH/g Typical uncertainty 2 %.	D2896	Potentiometric Titration
Chemical Oxygen Demand Standards (COD)	(50 to 15000) ppm O ₂ Typical uncertainty 0.5 %.	EPA 410.4-1 Modified	Spectrophotometry
Flash Point Standards	(20 to 260)°C. Typical uncertainty +/-4 °C.	ASTM D93	Pensky-Martens Closed Cup

Category and Sub-Category of Reference Material ²	Test, Analysis, Measurement ¹ (Including ranges and uncertainties)	Method	Measurement Technique (Where appropriate)
Certified Reference Materials:			
Acid and Base Reagents: Hydrochloric acid Sulfuric acid Nitric acid Acetic acid Citric acid Oxalic Acid Phosphoric acid Potassium Hydroxide Sodium Hydroxide Acidity Standard	(0.0015 to 10) Normal (0.02 to 18) Normal (0.1 to 10) Normal (0.1 to 5) Normal (0.03 to 1) Molar (0.1 to 1) Normal (1 to 10) % (0.1 to 1) Normal (0.0005 to 5) Normal 100 to 10 000 ppm as CaCO ₃ Typical uncertainty less than 1 %	In-house Test Method QC-MET021-ABT	Titration
Boric acid	1 to 5 % Typical uncertainty less than 1 %	EPA 200.7 Modified	ICP-AES

Category of Reference Material	Test, Analysis, Measurement ¹ (Including ranges and uncertainties)	Method	Measurement Technique (Where appropriate)
Matrix Reference Materials^{2*}:			
EnviroMAT - Contaminated soil (Ag, Al, As, B, Ba, Be, Ca, Cd, Ce, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mo, Na, Ni, P, Pb, S, Sb, Se, Sn, Sr, Tl, U, V, Y, Zn)	(0 to 200 000) ppm	Interlaboratory Study	N/A
EnviroMAT - Sewage Sludge (Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mo, Na, Ni, P, Pb, S, Sb, Se, Sn, Sr, Tl, U, V, Y, Zn)	(0 to 50000) ppm	Interlaboratory Study	N/A
EnviroMAT – Compost (Total metals: Al, As, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Na, Ni, P, Pb, S, Se, Zn) Total Nitrogen, NO ₃ -N, Organic Matter, pH	pH (6 to 7.5) Organic matter 20 to 80 % Total N 1 % maximum Metals (0 to 60000) ppm	Interlaboratory Study	N/A
EnviroMAT - Drinking Water (Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mo, Na, Ni, P, Pb, Sb, Se, Sn, Sr, Tl, U, V, Zn)	(0 to 2000) ppm	Interlaboratory Study	N/A

EnviroMAT - Ground Water (Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mo, Na, Ni, P, Pb, Sb, Se, Sn, Sr, Tl, U, V, Zn)	(0 to 2000) ppm	Interlaboratory Study	N/A
EnviroMAT - Waste Water (Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mo, Na, Ni, P, Pb, Sb, Se, Sn, Sr, Tl, U, V, Zn)	(0 to 5000) ppm	Interlaboratory Study	N/A
EnviroMAT - Used oil (Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Li, P, Pb, Si, Sn, Ti, V, Zn)	(0 to 10000) ppm	Interlaboratory Study	N/A
AgroMAT - Clay Soil (Metals: P, K, Ca, Mg, Na, Zn, Mn, Cu, Fe, B, S, Al) (pH, Organic matter, N-NO ₃ , Soluble Salts)	Metals: (0 to 3000) ppm pH (6 to 8) Organic matter (1 to 6) % N-NO ₃ (5 to 20) ppm Soluble salts (100 to 700) μ S/cm	Interlaboratory Study	N/A
AgroMAT - Sandy Soil (Metals: P, K, Ca, Mg, Na, Zn, Mn, Cu, Fe, B, S, Al) (pH, Organic matter, N-NO ₃ , Soluble Salts)	Metals: 0-3000 ppm pH (6 to 8) Organic matter (1 to 6) % N-NO ₃ (5 to 100) ppm Soluble salts (100 to 700) μ S/cm	Interlaboratory Study	N/A
Lead in paint	(50 to 400) ppm	Interlaboratory Study	N/A
Cadmium and Lead in paint	(50 to 400) ppm	Interlaboratory Study	N/A

Category of Reference Material	Test, Analysis, Measurement¹ (Including ranges and uncertainties)	Method	Measurement Technique (Where appropriate)
Performance Evaluation Standards^{2*}:			
pE Check – Nutrients (NH ₃ as N, NO ₃ as N, o-PO ₄ , Total N, Total P)	(0.1 to 200) ppm	Interlaboratory Study	N/A
pE Check – Minerals (Conductivity, Total Hardness, TDS, Ca, K, Mg, Na, Cl-, F-, SO ₄ (2-), Alkalinity)	Minerals: (0.01 to 1000) ppm TDS: (10 to 5000) μS/cm Total Hardness: (10 to 600 ppm as CaCO ₃) Alkalinity: (50 to 5000 ppm as CaCO ₃) Conductivity: (100 to 10 000 μS/cm)	Interlaboratory Study	N/A
pE Check – Solids (Suspended Solids, Dissolved Solids, Total Solids)	(1 to 4000) ppm	Interlaboratory Study	N/A
pE Check – COD (Chemical Oxygen Demand)	(10 to 10000) ppm	Interlaboratory Study	N/A

¹ The listed uncertainty represents expanded uncertainties expressed at approximately the 95 % level of confidence, using a coverage factor of $k = 2$.

^{2*} These reference materials are intended for use as quality control materials, or other purposes that do not require metrological traceability of property values (such as calibration or value transfer).



Accredited Reference Material Producer

A2LA has accredited

SCP SCIENCE

Baie d'Urfe, Quebec, CANADA

This accreditation covers the specific materials listed on the agreed upon Scope of Accreditation.

This producer meets the requirements of ISO 17034:2016 *General Requirements for the Competence of Reference Material Producers*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.

Presented this 16th day of February 2018.

President and CEO
For the Accreditation Council
Certificate Number 2885.02
Valid to November 30, 2019

