SCOPE OF ACCREDITATION TO ISO 17034:2016

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REFERENCE MATERIAL PRODUCER

Valid To: May 31, 2028 Certificate Number: 7668.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this Reference Material Producer[1] for the production of the following certified reference materials and reference materials:

Certified Reference Material/ Matrix or Artifact	Property Value(s)/ Property Identity/ Range/ Uncertainty	Approach Used to Assign Property Values
Single and Multi-Component Organic and Inorganic Materials in Solution:		
• Metals • Anions • Cations	Concentration: 0.1 µg/L - 800 000 mg/L; Uncertainty range: 0.2 % - 2.0 %	ICP OES; ICP MS Ion chromatography
• Alcohols • Carbonyls and Derivatives • Carbamates • Conazoles • Heterocyclic Compounds • Hydrocarbons • Nitrogen Containing Organic Compounds • Organic Acids • Organochlorine Pesticides • Phenols • Phenoxyacetates • Phosphorus Containing Organic Compounds • Phthalates • Polyaromatic Hydrocarbons (PAHs) • Polybrominated/Polychlorinated biphenyls (PBBs and PCBs) • Pyrethroids • Synthetic Oils • Triazines • Volatile Organic Compounds	Concentration: 0.1 µg/L - 800 000 mg/L; Uncertainty range: 1.3 % - 5.0 %	Gravimetry; HPLC; HPLC-MS; GC/MS

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Certified Reference Material/ Matrix or Artifact	Property Value(s)/ Property Identity/ Range/ Uncertainty	Approach Used to Assign Property Values
Single and Multi-Component Organic and Inorganic Materials in Solution (cont):		
• pH Standards	pH: 1.679 - 12.000; Uncertainty range: 0.010 - 0.020	pH meter; Primary measurement method-harned cell
• Conductivity Standards	Conductivity: 5.00 µS/cm – 840 000 µS/cm; Uncertainty range: 1 % - 5 %	Conductivity meter
• Volumetric Solutions	Concentration: 0.001 mol/l – 20 mol/l; Uncertainty range: 0.2 % - 2.0 %	Titrimetry
• Alcohol	Ethanol content: 1 % v/v -100 % v/v; Uncertainty range: 0.01 % v/v -0.05 % v/v	Density meter
• Total Acid Number (TAN) • Total Base Number (TBN)	Concentration: 0.1 mgKOH/g - 100 mgKOH/g; Uncertainty range: 1.0 % - 5.0 %	Titrimetry
• Total Organic Carbon	Concentration: 1 mg/L - 80 000 mg/L; Uncertainty range: 1.0 % - 5.0 %	TOC analyzer
• Potassium Dichromate for UV/VIS	Concentration: 1 mg/L - 600 mg/L; Uncertainty range: 1.0 % - 5.0 %	UV/VIS
• Water Content	Concentration: 21 mg/kg - 100000 mg/kg; Uncertainty range: 0.5 % - 1.5 %	Karl Fischer coulometric titrator
• Turbidity	Turbidity: 1 NTU - 4000 NTU; Uncertainty range: 0.2 % - 2.0 %	Turbidimeter
• Chemical Oxygen Demand (COD)	COD: 1 mg/l O_2 - 80000 mg/l O_2; Uncertainty range: 1.0 % - 5.0 %	Titrimetry; UV/VIS
• Color	Hazen: 5 mg/l Pt - 500 mg/l Pt; Uncertainty range: 0.5 % - 5.0 % Saybolt - from -15 to +30 Uncertainty range: 0.5 % - 5.0 % Gardner - from 1 to 18 Uncertainty range: 0.5 % - 5.0 %	Gravimetry; UV/VIS
• Osmolality	Osmolality: 0 mosmol/kg -2000 mosmol/kg; Uncertainty range: 0.5 % - 2.0 %	Osmometer
• Refractive Index	Refractive index (RI) 1.32999 - 1.65999 Uncertainty range: 0.00005 – 0.00050	Refractormeter
• Sugar Content (°Brix)	Sugar content 0.01 °Brix – 60.00 °Brix Uncertainty range: 0.01 °Brix – 0.05 °Brix	Refractormeter

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High Purity Inorganic Compounds: • Metals • Salts	Purity: 1 % w/w – 100 % w/w; Uncertainty range: 0.001 % w/w -1.0 % w/w	ICP OES/ICP MS Ion chromatography Karl Fischer coulometric titrator
High Purity Organic Compounds: • Alcohols • Carbonyls and Derivatives • Carbamates • Conazoles • Heterocyclic Compounds • Hydrocarbons • Notrogen Containing Organic Compounds • Organic Acids • Organochlorine Pesticides • Phenoles • Phenoxyacetates • Phosphorus Containing Organic Compounds • Phthalates • Polyaromatric Hydrocarbons (PAHs) • Polybrominated/Polychlorinated Biphenyls (PBBS and PCBs) • Pyrethroids • Synthetic Oils • Triazines • Volatile Organic Compounds	Purity: 1 % w/w – 100 % w/w; Uncertainty range: 0.1 % w/w -5.0 % w/w	HPLC/HPLC-MS GC/MS Karl Fischer coulometric titrator qNMR
Solution for Determination of Density: • Density	Density: 0.655 g/cm^3 - 2.000 g/cm^3; Uncertainty range: 0.00010 g/cm^3 – 0.00050 g/cm^3	Density meter

Certified Reference Material/ Matrix or Artifact	Property Value(s)/ Property Identity/ Range/ Uncertainty	Approach Used to Assign Property Values
Solutions for Determination of Physical Properties of Petroleum Products:		
• Cold Filter Plugging Point (CFPP) • Pour Point	Temperature: -1°C to – 40 °C; Uncertainty range: 1.0 % - 3.0 %	Cold filter plugging point analyzer Pour point analyzer
• Viscosity	Viscosity: 0.5mm^2/s to 50mm^2/s; Uncertainty range: 0.2 % - 1.0 %	Viscometer
• Distillation	Temperature: 30°C to 400 °C; Uncertainty range: 0.2 % - 2.0 %	Automatic distiller
• Flash Point	Temperature: 40°C to 200 °C; Uncertainty range: 0.2 % - 2.0 %	Flash point analyzer
• Cloud Point	Temperature: -1°C to – 30 °C; Uncertainty range: 1.0 % - 3.0 %	Cloud point analyzer

Accredited Reference Material Producer

A2LA has accredited

CPACHEM LTD.

Bogomilovo, BULGARIA

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 13th day of July 2026.

Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 7668.01
Valid to May 31, 2028

For reference materials to which this accreditation applies, please refer to the reference material producer's Scope of Accreditation.