


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

| | | |
|--|---|--|
|  5824 Accredited to ISO 17034:2016 | ROMIL Ltd | |
| | Issue No: 012 Issue date: 23 December 2020 | |
| | The Source Convent Drive Waterbeach Cambridge CB25 9QT | Contact: Dr R Lenk Tel: +44 (0)1223 863873 Fax: +44 (0)1223 862700 E-Mail: pure.chemistry@romil.com Website: www.romil.com |
| Reference material production at the above address | | |

Flexible Scope

The reference material producer is recognised as competent to modify, develop and produce any reference material within the scope of the areas of competence covered by the general scope, and according to and described in the controlled company confidential procedures. The exhaustive list of reference materials covered under accreditation is maintained by, and available from, the reference material producer.

Information about flexible scopes of accreditation is available in UKAS document GEN 4.



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DETAIL OF ACCREDITATION

| Matrix / Artefact | Property Value(s) / Identity / Characterisation Range | Characterisation Procedure / Technique | Type* (CRM / RM) |
|---|--|--|------------------|
| <p>MONO AND MULTI ELEMENT REFERENCE SOLUTIONS</p> <p>Aluminium Antimony Arsenic Arsenic (III) Arsenic (V) Barium Bismuth Boron Carbon Cadmium Caesium Calcium Cerium Chromium(III) Chromium(VI) Cobalt Copper Dysprosium Erbium Europium Gadolinium Gallium Gold Hafnium Holmium Indium Iron Lanthanum Lead Lithium Lithium-6</p> | <p>Concentration 0.001 mg/l to 50 000 mg/l at 20°C</p> | <p>Measurement for each by a single primary definitive method at ROMIL</p> | <p>CRM</p> |



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| MONO AND MULTI ELEMENT REFERENCE SOLUTIONS (cont'd) Lutetium Magnesium Manganese Mercury Molybdenum Neodymium Nickel Palladium Phosphorus Platinum Potassium Praseodymium Rubidium Samarium Scandium Selenium Silver Sodium Strontium Sulphur Tellurium Terbium Thallium Thulium Tin Vanadium Ytterbium Yttrium Zinc Zirconium | Concentration 0.001 mg/l to 50 000 mg/l at 20°C | Measurement for each by a single primary definitive method at ROMIL | CRM |



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| <p>MONO AND MULTI ELEMENT REFERENCE SOLUTIONS (cont'd)</p> <p>Beryllium Germanium Iridium Niobium Rhenium Rhodium Ruthenium Silicon Tantalum Thorium Titanium Tungsten Uranium</p> <p>Other Elements (The organisation holds a flexible scope for characterisation of suitable materials)</p> | <p>Concentration 0.001 mg/l to 50 000 mg/l at 20°C</p> <p>Range determination is part of the certification under the flexible scope</p> | <p>Measurement for each by ICP</p> <p>Measurement for each by a single primary definitive method at ROMIL</p> | <p>CRM</p> <p>CRM</p> |



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| MONO AND MULTI ION REFERENCE SOLUTIONS Acetate Adipate Ammonia Ammonia-N Ammonium Ammonium-N Benzoate Bromate Bromide Butyrate iso-Butyrate Carbonate Chlorate Chloride Chromate Cinnamate Citrate Cyanide Dichromate Fluoride Formate Glutarate Glycolate Iodate Iodide Lactate Malate Maleate Malonate Methanesulphonate Nitrate Nitrate-N Nitrite Nitrite-N Oxalate Perchlorate Phosphate Phosphate-P Phthalate Pivalate Propionate Succinate Sulphate Sulphate-S Sulphide Tartrate Thiocyanate | Concentration 0.001 mg/l to 50 000 mg/l at 20°C | Measurement for each by a single primary definitive method at ROMIL | CRM |



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| MONO AND MULTI ION REFERENCE SOLUTIONS (cont'd) | | | |
| Chlorite | Concentration 0.001 mg/l to 50 000 mg/l at 20°C | Measurement by IC | CRM |
| Other Ions (The organisation holds a flexible scope for characterisation of suitable materials) | Range determination is part of the certification under the flexible scope | Measurement for each by a single primary definitive method at ROMIL | CRM |
| Reference Solutions and Liquids with Density Properties | Range 0.85g/ml to 1.62g/ml at 20°C | Measurement by single primary method at ROMIL | CRM |
| STOICHIOMETRIC REFERENCE MATERIALS | | | |
| Ammonium Cerium(IV) Nitrate Ammonium Cerium(IV) Sulphate 2H ₂ O Arsenic Trioxide Benzoic Acid Calcium Carbonate EDTA di-Sodium salt 2H ₂ O Oxalic Acid 2H ₂ O Potassium Bromide Potassium Chloride Potassium Dichromate Potassium di-Hydrogen Phosphate Potassium Hydrogen Phthalate Potassium Iodate Potassium Iodide Sodium Carbonate Sodium Chloride Sodium Dodecyl Sulphate Sodium Oxalate Sulphamic Acid Tris(hydroxymethyl)methylamine Zinc | Assay (%m/m) | Measurement for each by a single primary definitive method at ROMIL | CRM |



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| STOICHIOMETRIC REFERENCE MATERIALS (cont'd) | | | |
| Other Stoichiometric Reference Materials (The organisation holds a flexible scope for the characterisation of suitable materials) | Assay (%m/m) | Measurement for each by a single primary definitive method at ROMIL | CRM |
| Bound Nitrogen reference solution Cyanide-complex reference solution Silica reference solution Total Inorganic Carbon reference solution Total Organic Carbon reference solution | Concentration 0.001 mg/l to 50 000 mg/l at 20°C | Measurement for each by a single primary definitive method at ROMIL | CRM |
| Other Reference Solutions (The organisation holds a flexible scope for the characterisation of suitable materials) | Range determination is part of the certification under the flexible scope | Measurement for each by a single primary definitive method at ROMIL | CRM |
| Holmium UV/Vis reference solution | Wavelength at 241.1nm, 278.0nm, 287.5nm, 361.2nm, 416.6nm, 451.3nm, 485.3nm, 537.0nm, 640.8nm | Measurement by a single primary definitive method at ROMIL | CRM |
| Potassium Dichromate UV/Vis reference solutions | Absorbance at 235nm, 257nm, 313nm, 350nm | Measurement by a single primary definitive method at ROMIL | CRM |
| Other UV/VIS Reference Solutions (The organisation holds a flexible scope for the characterisation of suitable materials) | Absorbances are part of the certification under the flexible scope | Measurement for each by a single primary definitive method at ROMIL | CRM |



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| <p>CONDUCTIVITY REFERENCE SOLUTIONS</p> <p>Potassium Chloride solutions</p> | <p>Electrical conductivity at 25 °C. 84 µS/cm, 147µS/cm, 1408µS/cm, 1413µS/cm, 12880µS/cm, 111342µS/cm</p> | <p>Measurement by a single primary definitive method at ROMIL</p> | <p>CRM</p> |
| <p>COLOUR REFERENCE SOLUTIONS</p> <p>Platinum-Cobalt solution</p> <p>Other Colour Reference Solutions (The organisation holds a flexible scope for the characterisation of suitable materials)</p> | <p>Colour value 500 Pt-Co units</p> <p>Range determination is part of the certification under the flexible scope</p> | <p>Measurement by a single primary definitive method at ROMIL</p> <p>Measurement for each by a single primary definitive method at ROMIL</p> | <p>CRM</p> <p>CRM</p> |



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| <p>TRACEABLE VOLUMETRIC REAGENTS</p> <p>Acetic Acid Ammonia (organic solution) Ammonium Hydroxide Ammonium Thiocyanate Barium Hydroxide Calcium Chloride Cerium(IV) Sulphate Dodecylbenzenesulphonic Acid EDTA di-Sodium salt Hyamine Hydrochloric Acid Hydrofluoric Acid Iodine Nitric Acid Oxalic Acid Perchloric Acid (organic solution) Potassium Bromate/Bromide Potassium Chloride Potassium Dichromate Potassium Hydroxide (aqueous) Potassium Hydroxide (organic soln) Potassium Iodate Potassium Iodate/Iodide Potassium Methoxide Potassium Permanganate Potassium Thiocyanate Silver Nitrate Sodium Arsenite Sodium Carbonate Sodium Chloride Sodium Dodecyl Sulphate Sodium Hydroxide Sodium Thiosulphate Sulphuric Acid</p> | <p>Concentration Expressed as Molarity at 20°C</p> | <p>Measurement for each by a single primary definitive method at ROMIL</p> | <p>CRM</p> |



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| TRACEABLE VOLUMETRIC REAGENTS (cont'd) Other volumetric reagents (The organisation holds a flexible scope for the certification of suitable materials) | Concentration Expressed as Molarity at 20°C | Measurement for each by a single primary definitive method at ROMIL | CRM |
| END | | | |

***Type**

CRM = Certified Reference Material(s)

RM = Reference Material(s)

Refer to ISO 17034 for full definitions