

600-55 Metcalfe Street  
Ottawa, ON K1P 6L5  
Canada

55, rue Metcalfe, bureau 600  
Ottawa, ON K1P 6L5  
Canada

## **SCOPE OF ACCREDITATION**

### **ACTIVATION LABORATORIES LTD.**

**41 Bittern Street  
Ancaster, ON  
L9G 4V5**

Accredited Laboratory No. 266

(Conforms with requirements of ISO/IEC 17025:2005, RG-FORENSIC , RG-LAB, RG-MINERAL )

**CONTACT:** Michael Hoffman  
**TEL:** +1 905 648 9611 Ext: 322  
**FAX:** +1 905 648 9613  
**EMAIL:** MichaelHoffman@actlabs.com  
**URL:** <http://www.actlabs.com>

**CLIENTS SERVED:** All interested parties

**FIELDS OF TESTING:** Chemical/Physical, Mechanical/Physical

**FORENSICS DISCIPLINE(S):** Forensic Chemistry / Trace Evidence

**PROGRAM SPECIALTY AREA:** Agriculture Inputs, Food, Animal Health and Plant Protection (PSA-AFAP) , Environmental, Forensic, Mineral Analysis

**SCOPE ISSUED ON:** 2018-03-05

**ACCREDITATION VALID TO:** 2022-02-26

### **SCC GROUP ACCREDITATION**

This laboratory is a party to a SCC Group Accreditation with the following facilities in accordance with SCC's policy on Group Accreditation as documented in Accreditation Services Accreditation Program Overview.

Standards Council of Canada Accredited Laboratory No. 266

- Activation Laboratories Ltd., Thunder Bay, Ontario, Accredited Laboratory No. 673
- Activation Laboratories Ltd., Kamloops, BC, Accredited Laboratory No. 790
- Activation Laboratories Ltd., Timmins, Ontario, Accredited Laboratory No. 799

## **ANIMAL AND PLANTS (AGRICULTURE)**

### **Other**

#### **(Vegetation)**

QOP AquaGeo	Multi-Element Analysis Using Aqua Regia Extraction and Inductively Coupled Plasma Atomic Emission Spectrometry (Cu, Pb, Ag, Ni)
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## **ELASTOMERS AND PROTECTIVE AND OTHER COATINGS**

#### **(Paints and Organic Coatings)**

ASTM B499	Standard Test Method for measuring coating thickness by magnetic method non-magnetic coating on magnetic base
ASTM D3359	Standard test method for measuring adhesion by tape test
ASTM D3363	Standard test method for film hardness by pencil test

## **ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY**

### **Environmental**

#### **Soil (Radiochemistry)**

##### **(Alpha and Beta Emitting Radionuclides - Soil)**

QOP Gross Alpha and Beta	Measuring gross alpha and gross beta particle activities in water and soil
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##### **(Gamma Emitting Radionuclides - Soil)**

QOP Gamma Spec	Measuring gamma emitting radionuclides in water and soil
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##### **(Ra-226 - Soil/High Resolution Alpha Spectrometry)**

Standards Council of Canada Accredited Laboratory No. 266

QOP Ra-226 RA-226 for water and soil using High Resolution Alpha Spectrometry

**Soil/Sediment**

**(BTEX in Soil/Sediment/SPME-GC/MS)**

QOP BTEX GC/MS analysis of benzene, toluene, ethylbenzene and xylenes  
Benzene  
Ethylbenzene  
m/p-xylene  
o-xylene  
Toluene

**(Cyanide - Soil/Sediment / Automated UV digestion/colourimetric)**

QOP Cyanide Automated analyzer method for the determination of Total CN in water/soil

**(Mercury - Soil/Cold Vapour FIMS)**

QOP Hg FIMS Mercury Analysis by Aqua Regia Leach and Cold Vapour Atomic Absorption Spectrophotometry (Package 1G: Hg)

**(Metals - Soil/ICP - digestion)**

QOP AquaGeo Multi-Element Analysis Using Aqua Regia Extraction and Inductively Coupled Plasma Atomic Emission Spectrometry  
Cadmium  
Chromium  
Cobalt  
Copper  
Lead  
Nickel  
Zinc

**(Metals - Soil/ICP-MS)**

QOP Ultra Trace 1 Trace elements by aqua regia digestion and ICP/MS  
Antimony  
Arsenic  
Beryllium  
Cadmium

Chromium  
Cobalt  
Copper  
Lead  
Nickel  
Zinc

**Water (Inorganic)**

**(Alkalinity - Water/Titrimetric)**

QOP Alkalinity                      Titration method for the determination of alkalinity of water

**(Ammonium - Water/pH/mV meter with ion selective electrode)**

QOP Ammonia                      Electrode method for the determination of ammonia in water

**(Conductivity - Water/Conductivity meter)**

QOP Conductivity                      Electrode method for measuring the conductivity of water

**(Cyanide - Water/Automated UV digestion/colourimetric)**

QOP Cyanide                      Automated analyzer method for the determination of Total CN in water/soil

**(DOC - Water/TOC instrument)**

QOP TOC,  
Verbatim United States  
Pharmacopeia <643>                      Determination of Total Organic Carbon and Dissolved Organic Acid

**(Hydride Metals - Water/ICP-MS)**

QOP HydroGeo                      Hydrogeochemistry by ICP/MS  
Total Antimony  
Total Arsenic  
Total Selenium

**(Ions - Water/Ion Chromatography)**

QOP Anions, EPA 300.1                      Determination of Inorganic anions in water by IC as described by EPA Method 300.1

Dissolved Orthophosphate  
Dissolved Bromide  
Dissolved Fluoride  
Dissolved Nitrate  
Dissolved Nitrite  
Dissolved Sulfate  
Dissolved Chloride

**(Mercury - Water/Cold Vapour AA)**

QOP Hg FIMS                      Mercury Analysis by Aqua Regia Leach and Cold Vapour  
Atomic Absorption Spectrophotometry (Hg)

**(Metals - Water/ICP-MS)**

QOP HydroGeo                      Hydrogeochemistry by ICP/MS  
Dissolved Aluminum  
Dissolved Barium  
Dissolved Beryllium  
Dissolved Boron  
Dissolved Cadmium  
Dissolved Calcium  
Dissolved Chromium  
Dissolved Cobalt  
Dissolved Copper  
Dissolved Iron  
Dissolved Lead  
Dissolved Magnesium  
Dissolved Manganese  
Dissolved Molybdenum  
Dissolved Nickel  
Dissolved Silver  
Dissolved Strontium  
Dissolved Thallium  
Dissolved Tin  
Dissolved Titanium  
Dissolved Uranium  
Dissolved Vanadium  
Dissolved Zinc  
Potassium  
Sodium

**(Metals - Water/ICP-OES)**

Standards Council of Canada Accredited Laboratory No. 266

QOP Water                      Determination of Multi-Elements in waters using inductively coupled plasma atomic emission spectrometry

- Dissolved Aluminum
- Dissolved Barium
- Dissolved Beryllium
- Dissolved Boron
- Dissolved Cadmium
- Dissolved Calcium
- Dissolved Chromium
- Dissolved Cobalt
- Dissolved Copper
- Dissolved Iron
- Dissolved Lead
- Dissolved Magnesium
- Dissolved Manganese
- Dissolved Molybdenum
- Dissolved Nickel
- Dissolved Phosphorus
- Dissolved Silica
- Dissolved Silver
- Dissolved Strontium
- Dissolved Thallium
- Dissolved Tin
- Dissolved Titanium
- Dissolved Uranium
- Dissolved Vanadium
- Dissolved Zinc

**(pH - Water/pH meter)**

QOP pH                              pH Analysis of Waters Using ORION 720A pH Meter

**(Total Metals - Water/ICP-MS-digestion)**

QOP HydroGeo                      Hydrogeochemistry, by ICP/MS

- Total Antimony
- Total Arsenic
- Total Cadmium
- Total Calcium
- Total Chromium
- Total Cobalt
- Total Copper
- Total Iron
- Total Lead

Total Magnesium  
Total Manganese  
Total Nickel  
Total Phosphorus  
Total Selenium  
Total Vanadium  
Total Zinc

**(Total Metals - Water/ICP-OES)**

QOP Water                      Determination of Multi Elements in water using inductively coupled plasma atomic emission spectrometry  
Total Antimony  
Total Arsenic  
Total Cadmium  
Total Calcium  
Total Chromium  
Total Cobalt  
Total Copper  
Total Iron  
Total Lead  
Total Magnesium  
Total Manganese  
Total Nickel  
Total Phosphorus  
Total Selenium  
Total Silica  
Total Vanadium  
Total Zinc

**(TSS - Water/Gravimetric)**

QOP TSS                      Filter method for the measurement of total suspended solids in water by gravimetry

**(Turbidity - Water/Nephelometric)**

QOP Turbidity                      Turbidimeter method for the measurement of turbidity of water

**Water (Organic)**

**(BTEX in water/SPME-GC/MS)**

QOP BTEX

GC/MS analysis of benzene, toluene, ethylbenzene and xylenes

Benzene  
Ethylbenzene  
m/p-xylene  
o-xylene  
Toluene

**(Phenol - Water/Wastewater/UV digestion/colourimetric)**

QOP Phenol Automated Analyzer Method for the Determination of Total Phenol in Water

**Water (Radiochemistry)**

**(Alpha and Beta Emitting Radionuclides - Water)**

QOP Gross Alpha and Beta Measuring gross alpha and gross beta particle activities in water and soil

**(Gamma Emitting Radionuclides - Water)**

QOP Gamma Spec Measuring gamma emitting radionuclides in water and soil

**(Ra-226 - Water/High Resolution Alpha Spectrometry)**

QOP Ra-226 Ra-226 for water and soil using High Resolution Water Spectrometry

**Occupational Health and Safety:**

QOP U Isotope Hair Uranium isotopic ratio in hair samples by ICP/MS  
QOP U Isotope Urine Uranium isotopic ratio in urine samples by ICP/MS  
QOP Uranium Hair Total uranium concentration in hair samples by ICP/MS  
QOP Uranium Urine Total uranium concentration in urine by ICP/MS

**METALLIC ORES AND PRODUCTS**

**Articles of Metal:**

**(Chemical Tests)**

QOP Carbon& Sulphur Total Sulphur Content in Metals by the Combustion



QOP ICP MET Instrumental Method (Sulphur Content by Combustion/IR)  
Multi-Element Chemical Analysis of Metallic Material using (ICP-AES) for alloys of Steel, Stainless Steel, Copper, Aluminum, Nickel (Chemical analysis of metals for the following elements: Mn, P, Si, Cr, Ni, Mo, Cu, V, Al - Co, Zr, Cb, Nb, Ta, W, Mg, Fe, Sn, Sb, Ag, Bi, Sr, Cd)

**(Laboratory Corrosion Tests)**

ASTM B117 Procedure for salt spray testing (fog testing) (Salt spray exposure to various parts for a specified amount of time or during cyclical corrosion testing)

ASTM B154 Standard test method for mercurous nitrate test for copper and copper alloys

ASTM D1735 Standard practice for water resistance of coating using water fog apparatus

ASTM G48, method A and B only Standard test method for pitting and crevice corrosion resistance of stainless steels and related alloys by use of ferric chloride solution

ASTMD2247 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity

**(Mechanical Tests)**

ASTM A370 Standard test methods and definitions for mechanical testing of steel products

ASTM A489 Carbon Steel Lifting Eyes

ASTM E10 Brinell Hardness of Metallic Materials

ASTM E18 Rockwell Hardness of Metallic Materials

ASTM E190 Guided Bend Test for Ductility of Welds

ASTM E23 Notched Bar Impact Testing of Metallic Materials

ASTM E290 Bend Testing of Material for Ductility

ASTM E517 Plastic Strain Ratio  $r$  for Sheet Metal

ASTM E646 Tensile Strain-Hardening Exponents (n-values)

ASTM E8 Tension Testing of Metallic Materials

ASTM F606, Except for section 7 (Embrittlement test) Standard test method for mechanical properties of externally and internally threaded fasteners, washers, and rivets

**(Metallic Coatings)**

ASTM A428 Standard test method for weight of coating on aluminium coated iron or steel articles

ASTM A90 Standard test method for weight of coating on zinc coated iron or steel articles

ASTM B487 Using Microscopic Examination or Instrumentation to determine the coating thickness on various materials

## Standards Council of Canada Accredited Laboratory No. 266

ASTM B578	Standard test method for microhardness of electroplated coating
ASTM D3170	Test Method for Chip Resistance of Coatings

### **(Metallography)**

ASTM A247	Standard test method for the microstructure of graphite in iron castings
ASTM A262, Method A only	Standard tests method for oxalic acid etch test for austenitic stainless steel
ASTM A923	Standard test method for detecting detrimental intermetallic phase in duplex stainless steel
ASTM E1077	Standard test method for estimating the depth of decarburization of steel
ASTM E112	Determining Average Grain Size
ASTM E3	Preparation of metallographic specimens
ASTM E340	Standard test method for macroetch metals and alloy
ASTM E381	Macrotech for Inspection and Rating of Steel Products
ASTM E384	Method for microindentation hardness test
ASTM E45	Determination of Inclusion Content of Steel
ASTM E562	Systematic Manual Point Count

### **Metallic Ores:**

#### **Rocks and Ores**

Refer to minor sub-heading: **Sediments**

#### **Sediments**

QOP H <sub>2</sub> O:	Gravimetric Determination of H <sub>2</sub> O +/H <sub>2</sub> O-Water of Soils and Rocks (Gravimetric Package 4F: H <sub>2</sub> O+/H <sub>2</sub> O-)
QOP Hg FIMS	Mercury Analysis by Aqua Regia Leach and Cold Vapour Atomic Absorption Spectrophotometry (Package 1G: Hg)

### **Mineral Analysis Testing**

**(CAN-P-1579)**

#### **Contract Settlement Assaying**

Refer to minor sub-heading: **Geotechnical Testing**

#### **Geotechnical Testing**

Refer to minor sub-heading: **Mineral Assaying**

#### **Mineral Assaying**

QOP 1B2 ICP-MS	Platinum Group Elements using NiS Fire Assay and ICP-MS (Ir, Ru, Rh, Pt, Pd, and Re by Fire Assay with ICP-MS finish)
QOP AA - Au	Procedure for analysis of Gold and/or Silver by Fire Assay with AA or Gravimetric finish
QOP AquaGeo	Multi-Element Analysis Using Aqua Regia Extraction and Inductively Coupled Plasma Atomic Emission Spectrometry for Ag, Co, Cu, Ni, Pb, Zn
QOP ASSAY	Assay Analysis Using Aqua Regia and Inductively Coupled Plasma Atomic Emission Spectrometry for Ag, Co, Cu, Ni, Pb, Zn
QOP INAAGEO	Procedures for Instrumental Neutron Activation Analysis (INAA) for Mineral Samples As, Au, Cr, Co, Sb, Sc, Sn, Ta, U (238), U (235 by DNC, Delayed Neutron Counting), W
QOP PGE ICP-MS	Platinum Group Elements Analysis using Fire Assay and Inductively Coupled Plasma Mass Spectrometry for Au, Pt, Pd
QOP ProTRACE XRF	Trace Element analysis using XRF Spectrometer (Quantify analytes by pressing into a disk and using X-ray Fluorescence spectrophotometry - Rb, Sr, Y, Zr, Nb, Mo, Th, U, Sn, Pb, Ga, Ba, Cr, Co, V)
QOP Sodium Peroxide	Multi-Element Analysis using Sodium Peroxide Extraction and Inductively Couple Plasma Atomic Emission Spectrometry for Al, As, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Si, S, Ti, Zn
QOP TOTAL	Multi-Element Analysis Using Hydrofluoric/HNO <sub>3</sub> /Perchloric/HCl Acid Digestion and Inductively Coupled Plasma Atomic Emission Spectrometry for Ag, Co, Cu, Ni, Pb, Zn
QOP Total Assay	Total Assay Digestion using Hydrofluoric/HNO <sub>3</sub> /Perchloric/HCl Acid with Inductively Coupled Plasma Atomic Emission Spectrometry for Ag, Co, Cu, Ni, Pb, Zn
QOP Ultra Trace 1	Trace elements by aqua regia digestion and ICP/MS-for Li, Be, B, Na, Mg, Al, K, Ca V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As, Se, Rb, Sr, Y, Zr, Nb, Mo, Ag, Cd, In, Sn, Sb, Te, Cs, Ba, La, Ce, Nd, Sm, Eu, Tb, Yb, Lu, Hf, Ta, W, Re, Au, Tl, Pb, Bi, Th, U
QOP WRA	Multi-Element Whole Rock Analysis - Using Multi-Element Fusion Inductively Coupled Plasma - Atomic Emission Spectrometer (Al <sub>2</sub> O <sub>3</sub> , CaO, Fe <sub>2</sub> O <sub>3</sub> , K <sub>2</sub> O, LOI, MgO, MnO, Na <sub>2</sub> O, P <sub>2</sub> O <sub>5</sub> , SiO <sub>2</sub> , TiO <sub>2</sub> , Ba, Be, Sc, Sr, V, Y, Zr)
QOP WRA4B2	Trace Element Suite by Fusion Method 4B and Inductively Coupled Plasma-Mass Spectrometer (ICP/MS) Ba, Hf, Nb, Rb, Sn, Ta, Th, U, V, Y, Zr, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu
QOP XRF FUSION	Fusion using XRF spectrometer (Quantify analytes by X-ray Fluorescence which are fused with Lithium and reported in the oxide form - SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , Fe <sub>2</sub> O <sub>3</sub> , MnO, MgO, CaO, Na <sub>2</sub> O, K <sub>2</sub> O, TiO <sub>2</sub> , P <sub>2</sub> O <sub>5</sub> , Cr <sub>2</sub> O <sub>3</sub> , Co <sub>3</sub> O <sub>4</sub> , NiO, Zn, Sn and Cu)

**FORENSICS**

**Forensic Chemistry / Trace Evidence**

**Techniques for which laboratory is accredited:**

- a. QOP Ignitable : The analysis for the presence/absence of ignitable liquids in fire debris samples.

**Notes:**

**ISO/IEC 17025:** General Requirements for the Competence of Testing and Calibration Laboratories (ISO/IEC 17025-2005)

**RG - FORENSIC:** SCC Requirements and Guidance for the Accreditation for Forensic Testing Laboratories

**RG - MINERAL:** SCC Requirements and Guidance for the Accreditation of Mineral Analysis Testing Laboratories

**RG - LAB:** SCC Requirements and Guidance for the Accreditation of Testing Laboratories

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Elias Rafoul, Vice President  
Accreditation Services

Date: 2018-03-05

Number of Scope Listings: 87

Number of Forensic Techniques: 1

SCC 1003-15/308

Partner File #0

Partner: SCC