



# CALA

Canadian Association for  
Laboratory Accreditation Inc.

## CALA Directory of Laboratories

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**Membership Number:** 3915  
**Laboratory Name:** AGAT Laboratories - Lloydminster  
**Parent Institution:** AGAT Laboratories Ltd.  
**Address:** 5921B 50th Ave. Lloydminster SK S9V 2A4  
**Contact:** Mrs. Marilou Ricketts  
**Phone:** (780) 522-5143; (306) 825-3657  
**Fax:** (780) 462-2490  
**Email:** ricketts@agatlabs.com; jroberts@agatlabs.com; vhill@agatlabs.com;

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**Standard:** Conforms with requirements of ISO/IEC 17025  
**Clients Served:** All Interested Parties  
**Revised On:** July 5, 2017  
**Valid To:** October 3, 2019

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### Scope of Accreditation

#### Soil

Chloride - Soil (031)  
INOR-190-6018; SM 4500-CL E  
COLORIMETRIC  
Chloride

#### Soil (Inorganic)

Ammonia - Soil (010)  
INOR-190-6012; modified from SM 4500-NH3 F  
SPECTROPHOTOMETRIC  
Ammonia

#### Soil (Inorganic)

Anions - Soil (001)  
INOR-190-6008, INOR-190-6002; modified from SM 4110 B and MCKEAGUE 3.21  
IC - SATURATED PASTE EXTRACTION  
Chloride  
Fluoride  
Nitrate  
Nitrite  
Sulfate

#### Soil (Inorganic)

Chromium - Soil (029)  
INOR-190-6016; modified from BARTLETT, R.J., JAMES, B.R. (1996), CHROMIUM PP. 683-701  
COLORIMETRIC - DIGESTION  
Chromium

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario "Safe Drinking Water Act" (2002).

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**Soil (Inorganic)**

Conductivity - Soil, Sediment (004)

INOR-190-6011, INOR-190-6002; modified from MCKEAGUE 4.13/3.21/4.12

CONDUCTIVITY METER

Conductivity (saturated paste)

**Soil (Inorganic)**

Flashpoint - Soil (009)

ORG-190-5100; modified from ASTM D93-02A

PENSKY MARTENS CLOSED CUP

Flashpoint

**Soil (Inorganic)**

Hot Water Boron - Soil (028)

INOR-190-6009, INOR-190-6014; modified from CARTER, M.R. and GREGORICH E.G. 2008. HOT WATER

SOLUBLE BORON

ICP/OES

Boron

**Soil (Inorganic)**

Metals - Soil (030)

INOR-190-6017; modified from SM 3125 B

ICP/MS

Antimony

Arsenic

Barium

Beryllium

Cadmium

Chromium

Cobalt

Copper

Lead

Mercury

Molybdenum

Nickel

Selenium

Silver

Thallium

Tin

Uranium

Vanadium

Zinc

**Soil (Inorganic)**

Particle Size - Soil (006)

INOR-190-6004; modified from SHELDRIK, B.H. and WANG, C, CARTER MO ED. 1993

SIEVE ANALYSIS

Particle Size (75um)

**Soil (Inorganic)**

Particle Size - Soil (022)

INOR-190-6013; modified from SHELDRIK, B.H and WANG, C, CARTER MO ED. 1993

HYDROMETER (2 PT)

% clay

% sand

% silt

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**Soil (Inorganic)**

Percent Saturation - Soil (002)  
INOR-190-6002; modified from MCKEAGUE 3.21  
GRAVIMETRIC - SATURATED  
Percent Saturation (Saturated Paste)

**Soil (Inorganic)**

pH - Soil/Sediment (007)  
INOR-190-6010, INOR-190-6002; modified from CARTER and GREGORICH, SOIL SAMPLING and METHODS OF ANALYSIS, 2ND ED.  
pH METER  
pH (1:1) Soil: Water  
pH (Saturated Paste)

**Soil (Inorganic)**

Soluble Cations - Soil (013)  
INOR-190-6009, INOR-190-6002; modified from SSMA CHAPTER 15 and SM 3120 B  
ICP/OES - SATURATED PASTE EXTRACTION  
Boron  
Calcium  
Magnesium  
Potassium  
Sodium  
Sulphur

**Soil (Inorganic)**

Specific Gravity - Soil (003)  
INOR-190-6003; modified from BAROID MUD BALANCE, ASTM D 4380, G50, and DRILLING WASTE MANAGEMENT  
MUD BALANCE  
Specific Gravity

**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (012)  
ORG-190-5103; modified from EPA SW846 METHOD 8260 AND METHOD 5030 C  
GC/MS  
Benzene  
Ethylbenzene  
m/p-xylene  
o-xylene  
Toluene

**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (014)  
ORG-190-5102; METHOD, CCME CWS PHC TIER 1 METHOD  
GC/FID - EXTRACTION COLD SHAKE  
F2: C10-C16  
F3: C16-C34  
F4: C34-C50

**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (015)  
ORG-190-5102; CCME CWS-PHC-TIER 1 METHOD  
GRAVIMETRIC - EXTRACTION COLD SHAKE  
F4: Gravimetric

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**Soil (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (027)  
ORG-190-5103; modified from CCME CWS-PHC TIER 1 METHOD  
GC/FID - PURGE AND TRAP  
F1: C6-C10

**Soil (Organic)**

Total Extractable Hydrocarbons (TEH) - Soil (023)  
ORG-190-5104; modified from AECV92-M2 and G108 and EPA SW-846 CH.4 and BCMOE CSR EPH IN  
SOLIDS BY GC/FID  
GC/FID - EXTRACTION  
EPH (C10-C19)  
EPH (C19-C32)  
SASK (C10-C22)  
SASK (C23-C60)  
TEH (C11-C30)

**Soil (Organic)**

Total Purgeable Hydrocarbons - Soil (025)  
ORG-190-5103; BCMOE VOLATILE HYDROCARBONS IN SOIL  
GC/FID  
TPqH (C5-C10)  
VH: C6-C10

**Solids (Organic)**

Organics - Soil (011)  
ORG-190-5101; IN-HOUSE  
GC/MS - LEACHATE PURGE AND TRAP  
Benzene  
Ethylbenzene  
m/p-xylene  
o-xylene  
Toluene

**Waste (Inorganic)**

Free Liquid - Waste (005)  
INOR-190-6006; modified from EPA SW-846 9095  
PAINT FILTER TEST  
Free Liquid

**Waste (Organic)**

Metals (Leachate) - Waste (008)  
INOR-190-6005, INOR-190-6009; IN-HOUSE  
ICP/OES - EXTRACTION  
Antimony  
Arsenic  
Barium  
Boron  
Cadmium  
Chromium  
Copper  
Iron  
Lead  
Mercury  
Selenium  
Silver  
Thallium  
Uranium

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Vanadium  
Zinc  
Zirconium

**Water (Inorganic)**

Ammonia - Water (017)  
INOR-190-6012; modified from SM 4500-NH3 F  
SPECTROPHOTOMETRIC  
Ammonia

**Water (Inorganic)**

Anions - Water (016)  
INOR-190-6008; modified from SM 4110 B  
ION CHROMATOGRAPHY  
Chloride  
Fluoride  
Nitrate  
Nitrite  
Sulfate

**Water (Inorganic)**

Soluble Cations - Water (018)  
INOR-190-6009; modified from SM 3120 B  
ICP/OES  
Calcium  
Magnesium  
Potassium  
Sodium

**Water (Organic)**

Petroleum Hydrocarbons (PHC) - Water (019)  
ORG-190-5106; modified from EPA SW846 METHOD 8260 AND METHOD 5030 C  
GC/MS  
Benzene  
Ethylbenzene  
m/p-xylene  
o-xylene  
Toluene

**Water (Organic)**

Petroleum Hydrocarbons (PHC) - Water (020)  
ORG-190-5102; IN-HOUSE modified from CCME CWS PHC TIER 1 METHOD  
GC/FID - EXTRACTION COLD SHAKE  
F2: C10-C16  
F3: C16-C34  
F4: C34-C50

**Water (Organic)**

Total Extractable Hydrocarbons (TEH) - Water (024)  
ORG-190-5105; modified from EPA SW-846 -3510 and AECV92-M2 and BCMOE CSR EPH IN WATER BY  
GC/FID  
GC/FID - EXTRACTION  
EPH (C10-C19)  
EPH (C19-C32)  
SASK (C10-C22)  
SASK (C23-C60)  
TEH (C11-C30)

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**Water (Organic)**

Total Petroleum Hydrocarbons (TPH) - Water (026)

ORG-190-5106; modified from EPA SW-846 5021 and EPA SW-846 8015B

GC/MS - PURGE AND TRAP

F1: C6-C10

TPgH (C5-C10)

VH (C6-C10)

**Water (Toxicology)**

Microtox - Liquid Phase - Water (021)

TOX-190-19000; modified from EPS 1/RM/24

BIOLUMINESCENCE

Microtox IC50 (15 min)

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