



# CALA

Canadian Association for  
Laboratory Accreditation Inc.

## CALA Directory of Laboratories

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**Membership Number:** 3152  
**Laboratory Name:** CARO Analytical Services - Edmonton  
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**Standard:** Conforms with requirements of ISO/IEC 17025:2017  
**Clients Served:**  
**Revised On:** October 13, 2021  
**Valid To:** July 24, 2022

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### Scope of Accreditation

#### Soil (Inorganic)

Particle Size Analysis (PSA) - Solids [Soil] (053)  
CA-TM-005; SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 55.3  
HYDROMETER  
Percent Clay  
Percent Sand  
Percent Silt

#### Solids (Inorganic)

Hexavalent Chromium - Solids [Soil] (055)  
CE-TM-043; BC MOE LABORATORY MANUAL SECTION C and EPA 3060A and EPA 7196A  
COLORIMETRIC - DIGESTION  
Hexavalent Chromium

#### Solids (Inorganic)

Metals - Solids [Soil] (057)  
CE-TM-051, CE-TM-052; modified from BC MOE LABORATORY MANUAL SECTION B and EPA 6010D and  
SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 15.2.1  
ICP/OES - SATURATED PASTE  
Boron  
Calcium  
Magnesium  
Potassium  
Sodium

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**Solids (Inorganic)**

Metals - Solids [Soil] (058)

CE-TM-050, CE-TM-052; modified from BC MOE LABORATORY MANUAL SECTION C (ANALYSIS) and EPA 3050B (PREPARATION) and EPA 6010D (ANALYSIS)

ICP/OES

Antimony

Arsenic

Barium

Beryllium

Boron

Cadmium

Chromium

Cobalt

Copper

Lead

Magnesium

Mercury

Nickel

Selenium

Silver

Thallium

Tin

Uranium

Vanadium

Zinc

**Solids (Inorganic)**

Particle Size Analysis (PSA) - Solids [Soil] (060)

CE-TM-047; SOIL SAMPLING & METHODS OF ANALYSIS, CARTER 55.4

SEIVE

Particle Size

**Solids (Inorganic)**

pH - Solids [Soil] (059)

CE-TM-044; SM 4500 B (ANALYSIS) and SM 4500 H+ (ANALYSIS) and SOIL SAMPLING & METHODS OF ANALYSIS, CARTER (PREPARATION)

ELECTROMETRIC

pH (1:2) soil:CaCl<sub>2</sub>

**Solids (Organic)**

Petroleum Hydrocarbons (PHC) - Solids [Soil] (062)

CE-TM-053; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD and EPA 8015C

GC/FID

F2: C10-C16

F3: C16-C34

F4: C34-C50

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**Solids (Organic)**

Polyaromatic Hydrocarbons (PAH) - Solids [Soil] (061)

CE-TM-049; modified from EPA 3570 (PREPARATION) and EPA 8270E (ANALYSIS)

GC/MS

1-Methylnaphthalene

2-Chloronaphthalene

2-Methylnaphthalene

Acenaphthene

Acenaphthylene

Anthracene

Benzo(a)anthracene

Benzo(a)pyrene

Benzo(b)fluoranthene

Benzo(b,j)fluoranthene

Benzo(g,h,i)perylene

Benzo(j)fluoranthene

Benzo(k)fluoranthene

Chrysene

Dibenzo(a,h)anthracene

Fluoranthene

Fluorene

Indeno(1,2,3 - cd)pyrene

Naphthalene

Phenanthrene

Pyrene

Quinoline

**Solids (Organic)**

Volatile Hydrocarbons (VH) - Solids [Soil] (064)

CE-TM-045; CCME CWS PETROLEUM HYDROCARBONS IN SOIL - TIER 1 METHOD

GC/FID-PURGE AND TRAP - 1:2 CA<sub>2</sub> EXTRACTION

F1: C6-C10

**Solids (Organic)**

Volatile Organic Compounds (VOC) - Solids [Soil] (065)

CE-TM-048; EPA 5030C (PREPARATION) and EPA 8260D (ANALYSIS)

GC/MS-PURGE AND TRAP

1,1-Dichloroethane

1,1-Dichloroethylene

1,1-Dichloropropene

1,1,1-Trichloroethane

1,1,1,2-Tetrachloroethane

1,1,2-Trichloroethane

1,1,2,2-Tetrachloroethane

1,2-Dichlorobenzene

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1,2-Dichloroethane  
1,2-Dichloropropane  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
Benzene  
Bromodichloromethane  
Bromoform  
Bromomethane  
Carbon tetrachloride  
Chlorobenzene  
Chlorodibromomethane  
Chloroethane (Ethyl chloride)  
Chloroethene (Vinyl chloride)  
Chloroform  
cis-1,2-Dichloroethylene  
cis-1,3-Dichloropropene  
Dibromomethane  
Dichloromethane  
Ethylbenzene  
m,p-Xylene  
Naphthalene  
o-Xylene  
Styrene  
Tetrachloroethylene  
Toluene  
trans-1,2-Dichloroethylene  
trans-1,3-Dichloropropene  
Trichloroethylene  
Trichlorofluoromethane

**Water (Inorganic)**

Alkalinity - Water (001)  
CE-TM-002; modified from SM 2320 B  
TITRIMETRIC  
Alkalinity (pH 4.5)

**Water (Inorganic)**

Ammonia - Water (022)  
CE-TM-012; modified from SM 4500-NH3 D  
ION SELECTIVE ELECTRODE (ISE)  
Ammonia

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**Water (Inorganic)**

Anions - Water (002)

CE-TM-006; modified from SM 4110 B

ION CHROMATOGRAPHY (IC)

Bromide

Chlorate

Chloride

Chlorite

Fluoride

Nitrate

Nitrite

Sulfate

**Water (Inorganic)**

Biochemical Oxygen Demand (BOD) - Water (012)

CA-TM-003, CE-TM-041; SM 5210 B and SM 5210 C

DISSOLVED OXYGEN METER (DO)

BOD (5 day)

CBOD (5 day)

Ultimate Biochemical Oxygen Demand (BOD) (180 day)

**Water (Inorganic)**

Chemical Oxygen Demand (COD) - Water (052)

CA-TM-004; modified from SM 5220 D

COLORIMETRIC - DIGESTION

COD

**Water (Inorganic)**

Chlorine - Water (054)

CA-TM-002-00; SM 4500-CL- G

COLORIMETRIC

Free Chlorine

Total Chlorine

**Water (Inorganic)**

Colour - Water (051)

CE-TM-37-00; SM 2120 C

SPECTROPHOTOMETRIC

True Colour

**Water (Inorganic)**

Conductivity - Water (003)

CE-TM-003; modified from SM 2510 B

ION SELECTIVE ELECTRODE (ISE)

Conductivity (25°C)

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**Water (Inorganic)**

Fluoride - Water (044)

CE-TM-026; SM 4500-F- C

ION SELECTIVE ELECTRODE (ISE)

Fluoride

**Water (Inorganic)**

Metals - Water (066)

CE-TM-052, CE-TM-054; modified from EPA 6010D

ICP/OES

Calcium

Iron

Magnesium

Potassium

Sodium

**Water (Inorganic)**

pH - Water (021)

CE-TM-001; SM 4500-H+ B

pH METER

pH

**Water (Inorganic)**

Phosphate - Water (023)

CE-TM-011; modified from SM 4500-P E

COLORIMETRIC

Phosphate

**Water (Inorganic)**

Reactive Silica - Water (006)

CE-TM-020; modified from SM 4500-SIO2 C

COLORIMETRIC

Reactive Silica

**Water (Inorganic)**

Solids - Water (026)

CA-TM-006, CE-TM-022; modified from SM 2540 C and SM 2540 D and SM 2540 E

GRAVIMETRIC

Total Dissolved Solids

Total Suspended Solids

Volatile Suspended Solids

**Water (Inorganic)**

Sulphide - Water (028)

CE-TM-024; modified from SM 4500-S2- D

COLORIMETRIC

Sulphide

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**Water (Inorganic)**

Tannin and Lignin - Water (033)  
CE-TM-030; modified from SM 5550 B  
COLORIMETRIC  
Tannin and Lignin

**Water (Inorganic)**

Total Phosphorus - Water (010)  
CE-TM-011; SM 4500-P B and SM 4500-P E  
COLORIMETRIC - DIGESTION  
Total Dissolved Phosphorus  
Total Phosphorus

**Water (Inorganic)**

Turbidity - Water (025)  
CE-TM-032; SM 2130 B  
NEPHELOMETRIC  
Turbidity

**Water (Microbiology)**

Coliforms - Water (049)  
CA-TM-009; modified from SM 9223  
ENZYME SUBSTRATE - COLILERT  
Escherichia coli (E. coli)  
Fecal (Thermotolerant) Coliforms  
Total Coliforms

**Water (Microbiology)**

Heterotrophic Plate Count (HPC) - Water (042)  
CE-TM-010; SM 9215 A and SM 9215 B  
POUR PLATE  
Heterotrophic Plate Count (HPC)

**Water (Toxicology)**

Daphnia magna - Water (015)  
CE-TM-028; EPS 1/RM/11 and EPS 1/RM/14  
LETHALITY  
Daphnia LC50 (48 h)  
Daphnia Single Concentration (48h)

**Water (Toxicology)**

Rainbow Trout - Water (014)  
CE-TM-027; EPS 1/RM/13 and EPS 1/RM/9  
LETHALITY  
Single Concentration (96h)  
Trout LC50 (96 h)

**Water (Toxicology)**

Rainbow Trout [pH Stabilization] - Water (050)  
CE-TM-035; EPS 1/RM/13 and EPS 1/RM/50  
ACUTE LETHALITY (SURVIVAL)  
Single Concentration (96h) - pH Stabilization

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## Trout LC50 (96h) - pH Stabilization

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