



LIST OF SERVICES 2018

*Accredited by:
Canadian Association for Laboratory Accreditation (CALA)
to ISO 17025 for Specific Tests*

KaizenLAB is a well established Accredited Environmental Laboratory with expertise in environmental organic and inorganic analysis. We have been in operation for 25 years providing analytical services to the environmental, water & waste water and the oil & gas businesses.

We have a team of expert Chemists, Biologists and Technologists who are specialists in environmental testing, data interpretation and customer service. The Lab is equipped with state-of-the-art analytical instrumentation and sample preparation equipment.

Some of the highlights of our services are:

- **BEST TURNAROUND TIME IN THE INDUSTRY (2-4 days)**
- **100% SERVICE ORIENTED LAB**
- **EXCELLENT PERSONALIZED SERVICE**
- **24/7 SUPPORT FOR LAB SERVICES**
- **WEEKEND & HOLIDAY SERVICES**
- **LAB RESULTS AVAILABLE ON-LINE**
- **CALA ACCREDITED LABORATORY**

Should you require an analysis not listed in this Schedule please contact our Customer Services Group:

Client Services Team

**Regular hours: 7:30 am to 5:30 pm Monday to Friday
7:30 am to 4:00 pm Saturday/Sunday
and holidays**

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SOIL - General Salinity Packages

Basic Salinity in soil

pH, EC, Na, K, Ca, Mg, SAR, Saturation Percentage

Detailed Salinity in soil (results in mg/L only)

pH, EC, Cl, SO₄, Ca, Mg, K, Na, SAR, Saturation Percentage

SOIL - General Inorganics

Ammonia in soil (1:2 extraction)

Ammonia (as N)

Anions in soil (Chloride & Sulphate by Saturated Paste)

Chloride, Sulphate

Cations in soil (Saturated Paste)

Ca, Mg, K, Na

Chloride in soil

Cl (mg/kg)

Electrical Conductivity (EC) of soil (Saturated Paste)

pH (1:2), Calcium Chloride extraction

pH (Saturated Paste)

pH of soil (1:2)

Phenols in soil (4AAP colorimetric method)

Sodium Adsorption Ratio (SAR) in soil

Sulphate in soil

Sulphate in soil (%) by ASTM C1580

Total Kjeldahl Nitrogen (TKN) in soil

Total Nitrogen in soil

TKN, NO₂, NO₃ and Total Nitrogen

SOIL - Nutrients

Available Ammonia (NH₃-N)

Available ammonia (as N)

Available Nitrate (NO₃-N)

Available nitrate (as N)

Available Nitrite Nitrogen (NO₂-N)

Available NPK

Available nitrate (as N), Available phosphorus, Available potassium

Available NPKS

Available nitrate (as N), Available phosphorus, Available potassium, Available sulphate (as S)

Available Phosphorus

Available Potassium

Available Sulphate (SO₄-S)

Available sulphate (as S)

SOIL - Metals

Alberta Tier 1 Metals in Soil

Sb, As, Ba, Be, Sat-B, Cd, Cr, Cr-VI, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, Sn, V, U and Zn

BC CSR Schedule 4 and 10 Metals in Soil

Sb, Be, Boron (Sat. Paste), Co, Cyanide (WAD), Cyanide (SAD), Fluoride, Mo, Ni, Se, Ag, Sulphur (elemental), Th, Sn, V, Li, Mn, Sr, Z, U

BC CSR Schedule 4 and 5 Metals in Soil

Sb, As, B, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Li, Mo, Ni, Se, Ag, Sn, Sr, Tl, V, U, Zn, plus pH

BC CSR Schedule 7 Metals in Soil

Sb, As, Ba, Be, Cd, Cr, Cu, Co, Cr6+, Hot Water Soluble B, Pb, Mo, Hg, Ni, Se, Ag, Tl, Sn, pH (Sat. Paste)

Boron by Saturated Paste Extract

CCME Metals in soil

Sb, As, Ba, Be, HWS-B or Sat P Boron, Cd, Cr, Cr-VI, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, Sn, V, U and Zn

Chromium hexavalent in soil (by Colorimetry)

Extractable Barium in soil

Hot Water Soluble Boron in soil

Mercury in soil

Metal: any single Metal (except Mercury) in soil

Metal: each additional Metal (except Mercury) in soil

Metals in soil

Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, Sn, V, U and Zn

Saskatchewan Metals Package

Ba, Cd, Cr, Cu, Pb, Hg, Ni, V, Zn

SOIL - Physical Parameters

Atterberg Limits

Bulk Density

Grain Size (0.075 mm sieve)

Moisture Content %

Organic Matter in soil

Particle Size Distribution by Hydrometer: Regular

% Clay, % Sand, % Silt and Texture

Particle Size Distribution by Hydrometer: Sand Classification

% Sand (Coarse & Very Coarse), % Sand (Medium) and % Sand (Very Fine & Fine)

Specific Gravity of soil

SOIL - Organics

Alcohols in soil

Methanol, Ethanol, Propanol, Isopropanol, Butanol and Pentanol

BC Hydrocarbons in soil (not PAH adjusted) - BTEX, VPH, EPH

BTEX, VPH and EPH

BC Hydrocarbons in soil (PAH Adjusted) - BTEX, VPH, LEPH, HEPH, PAH

BTEX, VPH, LEPH, HEPH and PAH

BC Volatile Petroleum Hydrocarbons in soil

Benzene, Toluene, Ethylbenzene, Xylenes and VPH - Volatile Petroleum Hydrocarbons (C6-C10)

BTEX in soil

Benzene, Toluene, Ethylbenzene and Xylenes

CCME Petroleum Hydrocarbons in soil: BTEX/F1-F4

Benzene, Toluene, Ethylbenzene, Xylenes, F1-F4 (C6-C50)

CCME Petroleum Hydrocarbons in soil: F4G

Fraction 4 by Gravimetry

Creosote related target compounds (PAH's & Pentachlorophenol) in soil

Regular PAH's (16 compounds) plus Carbazole, Dibenzofuran, C1 and C2-Naphthalenes, Pentachlorophenol and C1-Phenanthrenes/Anthracenes

Glycols in soil

Ethylene Glycol, Propylene Glycol, Diethylene Glycol, Triethylene Glycol and Tetraethylene Glycol

Halogenated Aliphatics in soil (Alberta Tier 1)

1,1-Dichloroethene, 1,2-Dichloroethane, Carbon Tetrachloride, Chloroform, Dibromochloromethane, Dichloromethane, Tetrachloroethene, Trichloroethene and Vinyl Chloride

Mineral Oil & Grease in soil

Oil & Grease (Dean & Stark) in soil

Polychlorinated Biphenyls in soil

Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, 1268, Total PCBs

Polycyclic Aromatic Hydrocarbons (PAH) in soil

Acenaphthene, Acenaphthylene, Anthracene, Bz(a)anthracene, Bz(a)pyrene, Bz(b+j,k)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-c,d)pyrene, Naphthalene, Phenanthrene, Pyrene

Saskatchewan Hydrocarbons in soil: BTEX/TEH

BTEX and Total Extractable Hydrocarbons (C11-C22, C23-C60)

Solvent scan in soil

Acetone, BTEX, n-Butyl Alcohol, Carbon Disulfide, Cresols & Cresylic Acid, Cyclohexanone, Ethyl Acetate, Ethyl Ether, Isobutanol, Methanol, MEK, Nitrobenzene, 2-Nitropropane and Pyridine

Sulfolane in soil

Total Extractable Hydrocarbons (C10-C50) in soil

SOIL - Organics (contd.)

Total Petroleum Hydrocarbons (C6-C50) in soil

Trichloroethene (TCE) and Tetrachloroethene (PCE) in soil

Volatile Organic Compounds in soil

BTEX, Trihalomethanes, Halogenated Aliphatics (24 compounds), Halogenated Aromatics (19 compounds), MTBE

DRILLING AND OTHER WASTE/SOILS - General

CCME Hydrocarbons for Drilling Waste: BTEX/F1-F4 (C6-C50)

Detailed Salinity for Drilling Waste

pH, EC, Cl, SO₄, Ca, Mg, K, Na, SAR, Specific Gravity

Detailed Salinity for Drilling Waste with Nitrogen

pH, EC, Cl, SO₄, Ca, Mg, K, Na, SAR, Specific Gravity plus Ammonia, Nitrite and Nitrate

Extractable Barium in Drilling Waste

Metals for Drilling Waste

Sb, As, Ba, Be, Sat-B, Cd, Cr, Cr(VI), Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Sr, Tl, Sn, V, Zn, extractable Ba

Microtox in Drilling Waste

Microtox in soil, sludge or solid

Microtox in water or liquid

Microtox on charcoal treated sample

Microtox Threshold Study

Oil & Grease (Dean & Stark) for Drilling Waste

Sump Suitability Package

Atterberg Limits, Texture - Hydrometer, Grain Size (75 micron)

DRILLING AND OTHER WASTE/SOILS - Landfill

Alberta Class II Landfill Criteria Package

pH, Flashpoint, Paint Filter, TCLP BTEX, TCLP Metals

BC Class II Landfill Analysis - Basic

pH, Paint Filter, Flashpoint, Total BTEX, TCLP BTEX and TCLP Metals

BC Class II Landfill Analysis - Extended

pH, Paint Filter, Flashpoint, Total BTEX, TCLP BTEX, Special Waste Oil and Grease (SWOG), and SWEP Leachate Metals and Inorganics (As, Ba, B, Cd, Cr, Cu, Pb, Se, Ag, U, Zn, Hg, CN, F, NO3+NO2, NO3, NO2)

City of Calgary Landfill Package

pH, EC, Flashpoint, Cl, Ca, Mg, Na, SAR, Sb, As, Ba, Be, Sat-B, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Ti, Sn, U, V, Zn, BTEX, TPH, TCLP Metals, Paint Filter

Flashpoint of soil

Ignitability (Rope Burn Test)

Manitoba Landfill Package

pH, Paint Filter, Ignitability, Total BTEX, TCLP Metals

Paint Filter Test

Saskatchewan Landfill Package

pH, Flashpoint, Paint Filter, TCLP Metals, TCLP Benzene, Total TEX (Toluene, Ethylbenzene, Xylenes)

TCLP BTEX

TCLP Benzene, Toluene, Ethylbenzene and Xylenes

TCLP Hexavalent Chromium

TCLP Lead

TCLP Metals

TCLP Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Hg, Ni, Se, Ag, Ti, U, V, Zn and Zr

WATER - Drinking Water Packages

Basic Water Potability Analysis (Potability pkg #1)

pH, EC, Ca, Mg, K, Na, Diss. Fe, F, Cl, NO2-N, NO3-N, PO4, SO4, Alkalinity, HCO3, CO3, OH, Hardness, TDS

Routine Water Potability Analysis (Potability pkg #2)

pH, EC, Ca, Mg, K, Na, Diss Fe, Diss Mn, F, Cl, NO2-N, NO3-N, PO4, SO4, Alkalinity, HCO3, CO3, OH, Hardness, TDS, Turbidity, True Colour

WATER - Salinity

Basic Salinity in water

pH, EC, Cl, Ca, Mg, Na, SAR

Detailed Salinity in water

pH, EC, Cl, SO4, Ca, K, Mg, Na, SAR

WATER - General Inorganics

Alkalinity of water

Alkalinity (total and phenolphthalein, as CaCO₃), Bicarbonate, Carbonate, Hydroxide

Ammonia in water

Ammonia (as N)

Anions in water

Fluoride, Chloride, Nitrite, Nitrate, Phosphate, Sulphate

Biochemical Oxygen Demand (BOD) in water

Bromate in water

BrO₃

Bromide in water

Carbonaceous Biochemical Oxygen Demand (CBOD) in water

Cations in water

Ca, Mg, K, Na

Chemical Oxygen Demand (COD) in water

Chlorate and Chlorite in Water

ClO₃, ClO₂

Chloride in water

Colour (Apparent) of water

Colour (True) of water

Cyanide in water

Dissolved Kjeldahl Nitrogen (DKN)

Dissolved Oxygen (DO)

Dissolved Phosphorus (DP)

Electrical Conductivity (EC) of water

Fluoride in Water

Hardness of water

Dissolved Ca, Dissolved Mg, Dissolved K, Dissolved Na, Hardness as CaCO₃

Nitrate+Nitrite-Nitrogen in Water

NO₂-N, NO₃-N, Total NO₂+NO₃-N

Orthophosphate (PO₄) in water

Oxyhalides Bromate, Chlorite, Chlorate in water

BrO₃, ClO₂, ClO₃

pH of water

WATER - General Inorganics (contd.)

Phenols in water (4AAP colorimetric method)

Reactive Silica in water

Resistivity of water

Sodium Adsorption Ratio (SAR) in Water

Sulphate in water

Sulphide in water

Total Dissolved Solids in Water by filtration

Total Kjeldahl Nitrogen (TKN) in water

Total Nitrogen in water

Total Kjeldahl Nitrogen, Nitrate, and Nitrite

Total Phosphorus (TP) in water

Total Residual Chlorine

Total Solids in Water

Total Suspended Solids (TSS)

Turbidity

Un-ionized Ammonia in water

Un-ionized ammonia (as N)

UV Absorbance

WATER - Metals

BC CSR Schedule 6 Metals in Water

Al, Co, Mn, Sb, Cu, Se, As, Fe, Ag, Ba, Pb, Na, Be, Li, Ti, B, Hg, Tl, Cd, Mo, U, Cr, Ni, V, Ca, Mg, Zn

Dissolved Hexavalent Chromium (Cr VI)

Dissolved Mercury

Dissolved Metal: any single Dissolved Metal from ICP-MS (except Mercury)

Dissolved Metal: each additional Dissolved Metal from ICP-MS (except Mercury)

Dissolved Metals (Full Scan)

Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mn, Hg, Mo, Ni, P, K, Se, Si, Ag, Na, Sr, S, Ti, Sn, Tl, U, V, Zn and Zr

Dissolved Metals in water (no Hg)

Al, Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Mo, Ni, Se, Ag, Sr, Tl, Sn, U, V and Zn

Dissolved metals including AB Tier 1 Metals

Al, Sb, As, Ba, B, Cd, Cr(III), Cr(VI), Cu, Fe, Pb, Mn, Hg (low-level), Ni, Se, Ag, U and Zn

Dissolved Metals including Mercury

Al, Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, Sr, Tl, Sn, U, V and Zn

Total Hexavalent Chromium (Cr VI) in water

Total Iron and Manganese in water

Total Lead in Water

Total Mercury in water

Total Metal: any single Total Metal in water from ICP-MS (except Mercury)

Total Metal: each additional Total Metal in water from ICP-MS (except Mercury)

Total Metals for Drinking Water

Al, Sb, As, Ba, B, Cd, Cr, Cu, Fe, Pb, Mn, Hg, Se, Ag, U and Zn

Total Metals in water (Full Scan), All Metals Included

Al, Sb, As, Ba, Be, Bi, B, Cd, Ca, Cr, Co, Cu, Fe, La, Pb, Li, Mg, Mn, Mo, Hg, Ni, P, K, Se, Si, Ag, Na, Sr, S, Tl, Ti, Sn, U, V, W, Zn, Zr

Total Metals in water (no mercury)

Al, Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Mo, Ni, Se, Ag, Sr, Tl, Sn, U, V and Zn

Total metals in water including AB Tier 1 Metals

Al, Sb, As, Ba, B, Cd, Cr(III), Cr(VI), Cu, Fe, Pb, Mn, Hg (low-level), Ni, Se, Ag, U, and Zn

Total Metals in water including Mercury

Al, Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, Sr, Tl, Sn, U, V and Zn

WATER - Microbiology

E.Coli in Water

Heterotrophic Plate Count in water

Iron Related Bacteria (IRB) in water

Microcystin-LR in water

Sulphate Reducing Bacteria (SRB) in water

Thermotolerant (Fecal) Coliforms in water

Total and Thermotolerant (Fecal) Coliforms and E. Coli in Water

Total and Thermotolerant (Fecal) Coliforms in water

Total Coliforms and E. Coli in water

Total Coliforms in Water

WATER - Organics

Alcohols in water

Methanol, Ethanol, Propanol, Isopropanol, Butanol and Pentanol

BC Hydrocarbons in water (not PAH adjusted) - BTEX, VPH, EPH

BTEX, VPH and EPH

BC Hydrocarbons in water (PAH adjusted) - BTEX, VPH, LEPH, HEPH, PAH

BTEX, VPH, LEPH, HEPH and PAH

BC Volatile Petroleum Hydrocarbons in water

Benzene, Toluene, Ethylbenzene, Xylenes and VPH - Volatile Petroleum Hydrocarbons (C6-C10)

BTEX in water

Benzene, Toluene, Ethylbenzene and Xylenes

CCME Petroleum Hydrocarbons in water: BTEX/F1-F2

Benzene, Toluene, Ethylbenzene, Xylenes, F1 and F2

Creosote related target compounds (PAH's & Pentachlorophenol) in water

*Regular PAH's (16 compounds) plus Carbazole, Dibenzofuran, C1 and C2-Naphthalenes,
Pentachlorophenol and C1-Phenanthrenes/Anthracenes*

Dissolved Organic Carbon (DOC) in water

Glycols in water

Ethylene Glycol, Propylene Glycol, Diethylene Glycol, Triethylene Glycol and Tetraethylene Glycol

Glyphosate in water

Haloacetic Acids in water

*Bromoacetic Acid, Bromochloroacetic Acid, Chloroacetic Acid, Dibromoacetic Acid, Dichloroacetic
Acid and Trichloroacetic acid*

Halogenated Aliphatics in water (Alberta Tier 1)

Refer to Table 2 of Alberta Tier 1 Remediation Guidelines

Hexachlorobenzene in water

MCPA in Water

2-Methyl-4-chlorophenoxyacetic Acid

Methanol in water

Nitritotriacetic Acid (NTA) in water

Oil & Grease in water

Pesticides / Herbicides in Water

*Atrazine, Bz(a)pyr, Bromoxynil, Chlorpyrifos, Cyanazine, Diazinon, Dicamba, 2,4-D, Diclofop-me,
Diuron, Dimethoate, Glyphosate, Malathion, Methoxychlor, Metolachlor, Metribuzin, NTA, Picloram,
Simazine, Terbufos, Triallate, Trifluralin*

Polychlorinated Biphenyls in water

Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, 1268, Total PCBs

WATER - Organics (contd.)

Polycyclic Aromatic Hydrocarbons (PAH) in water

Acenaphthene, Acenaphthylene, Anthracene, Bz(a)anthracene, Bz(a)pyrene, Bz(b+j,k)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-c,d)pyrene, Naphthalene, Phenanthrene, Pyrene

Saskatchewan Hydrocarbons in water: BTEX/TEH

BTEX and Total Extractable Hydrocarbons (C11-C22, C23-C60)

Solvent scan in water

Acetone, BTEX, n-Butyl Alcohol, Carbon Disulfide, Cresols & Cresylic Acid, Cyclohexanone, Ethyl Acetate, Ethyl Ether, Isobutanol, Methanol, MEK, Nitrobenzene, 2-Nitropropane and Pyridine

Sulfolane in water

Total Extractable Hydrocarbons (C10-C50) in water

Total Organic Carbon (TOC) in water

Total Petroleum Hydrocarbons (C6-C50) in water

Trichloroethene (TCE) and Tetrachloroethene (PCE) in water

Trihalomethanes in water

Bromoform, Bromodichloromethane, Dibromochloromethane and Chloroform

Volatile Organic Compounds (Drinking Water list)

Benzene, Carbon Tetrachloride, Chlorobenzene, 1,2 and 1,4-Dichlorobenzene, 1,2-dichloroethane, Ethylbenzene, Tetrachloroethene, Toluene, Vinyl Chloride and Xylenes

Volatile Organic Compounds in water (Full list - including AB Tier1)

BTEX, Trihalomethanes, Halogenated Aliphatics (24 compounds), Halogenated Aromatics (19 compounds), MTBE

TURNAROUND TIME & SAMPLE STORAGE

Tests can be requested according to the desired turnaround time as follows (working/business days):

	<u>Soil & Water</u>
Regular	4 days*
Rush	2 days
Priority	Next Day
Emergency	Weekends, Holidays & Same-day**

Due to the nature of some tests, 'Rush' analysis may not always be possible. Coordination with your Project Coordinator prior to submission of the samples to the lab is strongly advised.

The following additional charges will apply for fast turn-around time:

Rush	50%
Priority	100%
Emergency	200%

All samples will be stored until disposal date (30 days from the date received for water and 60 days for soil) unless other instructions are received. Additional charges will apply to extend sample storage depending on the number of samples and time to be stored.

Sample Handling, Container Supply and Disposal Fee: \$4.75

All prices are subject to change without notice.

Please call for a quotation for parameters that are not listed in the price book.

Chain of Custody and Supply Request forms are available at our website: www.kaizenlab.ca

* Please note some Microbiological and Organic tests have longer TATs between 10 and 15 days. Please check your SRC or contact Client Services to confirm TATs for time-sensitive samples

** If sample is received after noon, it will be reported next day before noon

