

## SCOPE OF ACCREDITATION

**Exova Canada Inc.**  
**EDMONTON LABORATORY**  
**7217 Roper Road**  
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**T6B 3J4**

Accredited Laboratory No. 18  
(Conforms with requirements of CAN-P-1585, CAN-P-4E (ISO/IEC 17025:2005))

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CLIENTS SERVED: All interested parties

FIELDS OF TESTING: Chemical/Physical

PROGRAM SPECIALTY AREA: Environmental

ISSUED ON: 2010-09-28

VALID TO: 2014-06-07

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

#### **Environmental**

#### **Soil/Sediment**

#### **(Acid Neutralizing Value - Soil)**

TM SOIL 024-10; Acid Neutralizing Value for Liming Materials (AOAC 955.01 Modified)  
Calcium Carbonate Equivalent

**(Atterberg Limits - Soil)**

TM SOIL 050-10; Atterberg Limits of Soils (ASTM D4318-05 Modified)  
Atterberg Limits

**(Available Cu/Fe/Mn/Zn - Soil)**

TM METAL 073-10; Extractable Micro Nutrients in Soil by ICP (MSS 4.65 Modified)  
Copper  
Iron  
Manganese  
Zinc

**(Barium Fusion)**

TM METAL 060-10; Barium in Soil by ICP (ASTM D4503 Modified)  
Barium Fusion

**(Boron - Soil)**

TM METAL 059-10; Hot Water Soluble Boron in Soil by ICP (MSS 4.61 Modified)  
Boron

**(BTEX - Soil)**

TM ORG 001-10; BTEX and F1 in Soil Samples by GC/MS/FID (SW 846, EPA 1311 Modified)  
Benzene  
Ethylbenzene  
m/p-Xylene  
o- Xylene  
Toluene

**(Bulk Density - Soil)**

TM PREP 016-10; Bulk Density and Specific Gravity of "As-Received" Samples (American Society of Agronomy No. 9, Part 1, Method 13-2 Modified)  
Bulk Density

**(Calcium Carbonate - Soil)**

TM SOIL 133-10; Calcium Carbonate in Soil by Dual pH (J. Ashworth, COM. SOIL SCI PLANT SCI 28, 841-848, 1997 Modified)  
Calcium Carbonate

**(Chloride - Soil)**

TM WET 017-10; Extractable Chloride in Soil by Colorimetric Centripetal Analyzer (SAA #3 CH 10 Modified)  
Chloride

**(Conductivity - Soil)**

TM SOIL 001-10; pH and Electrical Conductivity in 1:2 Ratio, Soil: Water (MSS 4.12 Modified)  
E.C. (1:2 water)

**(Cyanide - Soil)**

TM WET 053-10; Cyanide in Aqueous Solutions by Continuous Flow Colorimetry (LACHAT CYANIDE AND MSS 3.23 Modified)  
Cyanide, SAD  
Cyanide, Total  
Cyanide, WAD  
Cyanide, Water Soluble

**(Extractable N/P/K - Soil)**

TM WET 018-10; Extractable Nitrate, Phosphate and Potassium in Soils by Continuous Flow Colorimetry (SMAA (1993) 8.5 Modified)  
Nitrogen  
Phosphorus  
Potassium

**(Extractable Na/Ca/Mg/K. - Soil)**

TM METAL 054-10; Extractable Macro Nutrients in Soil by ICP (MSS 4.51 Modified)  
Calcium  
Magnesium  
Sodium

**(Extractable Na/Ca/Mg/K/C.E.C. - Soil)**

TM METAL 053-10; Exchangeable Cations and Cation Exchange Capacity (CEC) In Soil by Ammonium Acetate Extraction (MSS 3.32 Modified)  
Ammonium  
C.E.C.  
Calcium  
Magnesium  
Potassium  
Sodium

**(Extractable NH<sub>4</sub>/NO<sub>3</sub> - Soil)**

TM WET 016-10; Extractable Ammonium and Nitrate in Soil by Continuous Flow Colorimetry (MSS 4.35 Modified)  
Ammonium  
Nitrate

**(Extraction - Soil/Waste)**

TM SOIL 129-10; Salinity, pH and EC of Field-Moist Soils (SSMA ch15 Modified)  
Ammonium  
Calcium  
Chloride  
EC  
Extract  
Magnesium  
Nitrate + Nitrite  
pH  
Potassium  
Sodium  
Sulfur

**(Hydrocarbons - Soil/Waste)**

TM OIL 027-10; Dean Stark Analysis in Soil and Sludge (ACOSA REF. METHOD Modified)  
Oil Fraction  
Solids Fraction  
Water Fraction

**(Leachable BTEX - Soil/Waste)**

TM WET 033-10; Leachable BTEX in Solids and Waste by Gas Chromatography (SW-846, EPA1311 Modified)  
Benzene

Ethylbenzene  
m/p-xylene  
o-xylene  
Toluene

**(Lime Requirement - Soil)**

TM SOIL 060-10; CaCO<sub>3</sub> (Lime) Requirement in Soil by Single Buffer  
(SSMA 12.2 Modified)  
Lime Requirement - Soil

**(Mercury - Soil)**

TM METAL 063-10; Mercury in Aqueous Solutions by Cold Vapor Atomic  
Absorption (EPA 245.5 Modified)  
Mercury

**(Metals - Soil/Block Digestion)**

TM METAL 077-10; Metals in Soil, Sludge, Sediment and Oily Waste by ICP  
(EPA 3050 B Modified)  
Aluminum  
Calcium  
Iron  
Magnesium  
Manganese  
Phosphorus  
Potassium  
Silicon  
Sodium  
Sulphur

**(Metals - Soil/Block Digestion)**

TM METAL 077-10; Metals in Soil, Sludge, Sediment and Oily Waste by ICP  
(EPA 3050B Modified)  
Antimony  
Arsenic  
Barium  
Beryllium  
Bismuth  
Boron  
Cadmium  
Chromium  
Cobalt  
Copper

Lead  
Lithium  
Molybdenum  
Nickel  
Selenium  
Silver  
Strontium  
Thallium  
Tin  
Titanium  
Uranium  
Vanadium  
Zinc  
Zirconium

**(Metals - Soil/Salm Digest)**

TM METAL 077-10; Metals in Soil, Sludge, Sediment and Oily Waste by ICP  
(BCMOE SALM Modified)

Aluminum  
Calcium  
Iron  
Magnesium  
Manganese  
Phosphorous  
Potassium  
Silicon  
Sodium  
Sulfur

**(Metals - Soil/Salm Digest)**

TM METAL 077-10; Metals in Soil, Sludge, Sediment and Oily Waste by ICP  
(BCMOE SALM Modified)

Antimony  
Arsenic  
Barium  
Beryllium  
Bismuth  
Boron  
Cadmium  
Chromium  
Cobalt  
Copper  
Lead

Lithium  
Mercury  
Molybdenum  
Nickel  
Selenium  
Silver  
Strontium  
Thallium  
Tin  
Titanium  
Uranium  
Vanadium  
Zinc  
Zirconium

**(Organic Matter (LOI) - Soil)**

TM SOIL 019-10;                      Organic Matter in Soil by Loss on Ignition (MSS 3.8 Modified)  
Organic Matter by LOI

**(Particle Size Analysis)**

TM SOIL 032 - 10;                      Particle Size Analysis of Soil by Dry Sieve (MSS 55.4 Modified)  
TM SOIL 120 - 10;                      Particle Size Analysis of Soil by Hydrometer (MSS 47.4 Modified)  
Diameter < 2mm  
TM SOIL 121 - 10;                      Particle Size Analysis by Wet Sieve (ASTM C117 Modified)

**(Petroleum Hydrocarbons (PHC) - Soil)**

TM ORG 001-10;                      BTEX and F1 in Soil Samples by GC/MSD/FID (EPA 8260B/5035 Modified)  
F1: C6-C10

**(pH - Soil)**

TM SOIL 001-10/021-10;              PH METER (MSS 4.12/3.11 Modified)  
pH (0.01 M CaCl<sub>2</sub>)  
pH (1:2 Water/Soil)

**(Phenols, Total - Soil)**

TM WET 058-10;

Phenol in Aqueous Solutions by Continuous Flow  
Colorimetry (APHA 5530D Modified)  
Phenols, Total

**(Phosphorus, Olsen P - Soil)**

TM WET 101-10; Sodium Bicarbonate Extractable Phosphorus (Olsen P) in  
Soil by Continuous Flow Colorimetry (SSMA 8.2.1  
Modified)  
Bicarbonate Extractable

**(Physical Parameters)**

TM SOIL 044 - 10; Hydraulic Conductivity Saturated by Constant Head  
Method (MSS 2.5 Modified)  
Hydraulic Conductivity

**(Saturated Paste - Soil)**

TM SOIL 022-10; Sodium Absorption Ratio (SAR), pH and EC in Soil by  
Saturated Paste (SSMA CH.15 Modified)  
Ammonium  
Calcium  
Chloride  
EC  
Magnesium  
Nitrate + Nitrite  
pH  
Potassium  
Saturated Paste Extract  
Saturation Percentage  
Sodium  
Sulfur

**(Soluble Sulfate - Soil)**

TM METAL 083-10; Extractable Sulfur as Sulfate in Soils by ICP (MSS 4.47  
Modified)  
Sulfate

**(SWEP Leachate - Soil/Waste)**

TM SOIL 040-10; Special Waste Extraction Procedure (Modified  
SWEP)(SPECIAL WASTE REGULATIONS ACT, BC  
GOV Modified)  
Arsenic

Barium  
Boron  
Cadmium  
Chromium  
Copper  
Cyanide  
Fluoride  
Leachate Preparation  
Lead  
Mercury  
Nitrate + Nitrite  
Selenium  
Silver  
Uranium  
Zinc

**(TCLP Leachate - Soil/Waste)**

TM SOIL 039-10;

Toxicity Characteristics Leachate Procedure (TCLP) in  
Liquid, Solid and Waste Samples (SW 846, EPA 1311  
TCLP Modified)

Ammonium  
Antimony  
Arsenic  
Barium  
Beryllium  
Boron  
Cadmium  
Chromium  
Cobalt  
Copper  
Cyanide  
Fluoride  
Hexavalent Chromium  
Iron  
Leachate Preparation  
Lead  
Nickel  
Nitrate + Nitrite  
Phenol  
Selenium  
Silver  
Thallium  
Uranium  
Vanadium

Zinc  
Zirconium

**(Wettability - Soil)**

TM SOIL 049-10; Molarity Ethanol Droplet Value (MED) (AB SOIL SCI WORKSHOP YOUNG. VOL 27, P.59-63, 1990 Modified)  
Wettability

**Waste**

**(Flash Point - Waste)**

TM OIL 025-10; Flash Point in Liquid and Soil Samples by Penske-Martens Closed Cup Tester (ASTM D93 Modified)  
Flash Point

**(Free Liquids - Waste)**

TM SOIL 130-10; Paint Filter Test (SW846, EPA 9095B Modified)  
Free Liquids - Waste

**Water (Inorganic)**

**(Alkalinity (pH 4.5) - Water)**

TM WET 001-10; pH, Electrical Conductivity and Total and Phenolphthalein Alkalinity in Water by PCTitrate Auto Titrator (APHA 2320 B Modified)  
Alkalinity (pH 4.5)

**(Ammonia - Water)**

TM WET 008-10; Ammonia as Nitrogen in Aqueous Solutions by Continuous Flow Colorimetry (APHA 4500 NH<sub>3</sub> G Modified)  
Ammonium

**(B.O.D.)**

TM WET 044-10; Biological Oxygen Demand in Waters Wastewaters and Soils by Incubation (APHA 5210B Modified)  
BOD

**(C.O.D. - Water)**

TM WET 050-10;

Chemical Oxygen Demand in Water and Wastewater by  
Block Digestion (APHA 5220 D Modified)  
COD

**(Carbon - Water)**

APHA 5310 B TOC, DOC, TIC, DIC, and TC in Water and Wastewater by  
High-Temperature Combustion (TM WET 020-10)  
Carbon-Dissolved Inorganic  
Carbon-Dissolved Nonpurgeable Organic  
Carbon-Total  
Carbon-Total Inorganic  
Carbon-Total Nonpurgeable Organic

**(Chloride - Water)**

TM WET 005-10 Chloride in Aqueous Solutions by Colormetric Centripetal  
Analyzer  
TM WET 100-10 Chloride in Aqueous Solutions by Colormetric Discrete  
Analyzer (APHA 4500 Cl E Modified)  
Chloride

**(Chlorine - Water)**

TM WET 068-10; Total and Free Chlorine in Water by Spectrophotometer  
(APHA 4500-CL G Modified)  
Residual Chlorine

**(Chromium -Hex - Water)**

TM WET 075-10; Hexavalent Chromium in Aqueous Solutions by  
Colormetric Centripetal Analyzer (APHA 3500 CR B  
Modified)  
Chromium (Hexavalent)

**(Color - Water)**

TM WET 025-10; True and Apparent Color in Water by Visual Comparison  
(APHA 2120 B Modified)  
Color

**(Conductivity - Water)**

TM WET 001-10; pH, Electrical Conductivity and Total and Phenolphthalein  
Alkalinity in Water by PCTitrate Auto Titrator (APHA  
2510 B Modified)

Conductivity (25°C)

**(Cyanate - Water)**

TM WET 095-10; Cyanate in Water and Wastewater by Continuous Flow  
Colorimetry (APHA 4500-CN-L Modified)  
Cyanate

**(Cyanide - Water)**

TM WET 053-10; Cyanide in Aqueous Solutions by Continuous Flow  
Colorimetry (ALBERTA ENVIRONMENT 06608L/ EPA  
335.3/ LACHAT MANUAL MD21, 1997/ APHA 4500-CN  
C/APHA 4500-CN-I Modified)  
Cyanide - Dissolved  
Cyanide - SAD  
Cyanide - Total  
Cyanide - WAD

**(Dissolved Metals - Water)**

TM METAL 081-10; Trace Metals in Aqueous Solutions by ICP-MS (EPA 200.8  
Modified)  
Dissolved Aluminum  
Dissolved Antimony  
Dissolved Arsenic  
Dissolved Barium  
Dissolved Beryllium  
Dissolved Bismuth  
Dissolved Boron  
Dissolved Cadmium  
Dissolved Chromium  
Dissolved Cobalt  
Dissolved Copper  
Dissolved Iron  
Dissolved Lead  
Dissolved Lithium  
Dissolved Molybdenum  
Dissolved Nickel  
Dissolved Selenium  
Dissolved Silver  
Dissolved Strontium  
Dissolved Thallium  
Dissolved Tin  
Dissolved Titanium  
Dissolved Uranium

Dissolved Vanadium  
Dissolved Zinc  
Dissolved Zirconium

**(Dissolved Metals - Water (High Range))**

TM METAL 080-10;                   Metals in Aqueous Solutions by ICP (APHA 3120 B Modified)  
Dissolved Barium (High)  
Dissolved Calcium  
Dissolved Iron (High)  
Dissolved Magnesium  
Dissolved Manganese (High)  
Dissolved Phosphorus  
Dissolved Potassium  
Dissolved Silicon  
Dissolved Sodium  
Dissolved Sulfur  
Hardness - Calculation  
Sodium Absorption Ratio - Calculation

**(Dissolved Solids - Formation Water)**

TM WQ 035-10                   Filterable Residue in Oilfield Water, Gravimetric (APHA 2540 C/APHA 2540 E Modified)  
Dissolved Solids - Ignited @ 550°C  
Dissolved Solids - Dried @ 105°C

**(Dissolved Solids - Water)**

TM WET 055-10;                   Total Dissolved Solids in Water and Wastewater Dried at 180° C (APHA 2540 C/APHA 2540 E Modified)  
Fixed Dissolved Solids  
Total Dissolved Solids  
Volatile Dissolved Solids

**(Extractable Metals - Water)**

TM METAL 080-10;                   Metals in Aqueous Solutions by ICP (APHA 3120 B Modified)  
Extractable Calcium  
Extractable Iron  
Extractable Magnesium  
Extractable Manganese  
Extractable Phosphorus  
Extractable Potassium

Extractable Silicon  
Extractable Sodium  
Extractable Sulfur

**(Extractable Metals - Water)**

TM METAL 081-10; Trace Metals in Aqueous Solutions by ICP-MS (EPA 200.8 Modified)  
Extractable Aluminum  
Extractable Antimony  
Extractable Arsenic  
Extractable Barium  
Extractable Beryllium  
Extractable Boron  
Extractable Cadmium  
Extractable Chromium  
Extractable Cobalt  
Extractable Copper  
Extractable Iron  
Extractable Lead  
Extractable Lithium  
Extractable Molybdenum  
Extractable Nickel  
Extractable Selenium  
Extractable Silver  
Extractable Strontium  
Extractable Thallium  
Extractable Tin  
Extractable Titanium  
Extractable Uranium  
Extractable Vanadium  
Extractable Zinc  
Extractable Zirconium

**(Hydrogen Peroxide - Water)**

TM WET 023-10; Hydrogen Peroxide in Water and Wastewater by Titration  
(A TEXTBOOK OF QUANTITATIVE INORGANIC ANALYSIS METHOD III, 110 Modified)  
Hydrogen Peroxide

**(Major Ions - Water)**

TM WET 012-10; Anions in Aqueous Solutions by Ion Chromatography  
(APHA 4110 B Modified)  
Bromide

Chlorate  
Chloride  
Chlorite  
Fluoride  
Iodide  
Nitrate  
Nitrite  
Phosphate  
Sulfate

**(Mercury - Water)**

TM METAL 063-10; Mercury in Aqueous Solutions by Cold Vapour Atomic Absorption (APHA 3112B Modified)  
Mercury - Dissolved  
Mercury - Extractable  
Mercury - Total

**(Nitrogen Total - Water)**

TM WET 040-10; Total Nitrogen in Water and Wastewater by High-Temperature Combustion (ISO/TR 11905:1997(E) Modified)  
Dissolved Kjeldahl Nitrogen  
Dissolved Nitrogen  
Total Kjeldahl Nitrogen  
Total Nitrogen

**(Oil and Grease - Water)**

TM OIL 065-10; Total Oil & Grease in Water by Gravimetric Analysis (EPA 1664 Modified)  
Total Oil and Grease

**(pH - Water)**

TM WET 001-10; pH, Electrical Conductivity and Total and Phenolphthalein Alkalinity in Water by PCTitrate Auto Titrator (APHA 4500 H+B Modified)  
pH

**(Phenols - Water)**

TM WET 058-10; Phenol in Aqueous Solutions by Continuous Flow Colorimetry (APHA 5530 D Modified)  
Phenols

**(Phosphorus - Water)**

TM WET 073-10/TM WET 099 Ortho-Phosphate in Water by Continuous Flow Colorimetry (10APHA 4500 P - F Modified)  
Orthophosphate (SRP)  
Total Dissolved Phosphorus  
Total Phosphorus

**(Reactive Silica - Water)**

TM WET 091-10; Molybdate Reactive Silica in Water by Spectrophotometer (APHA 4500 SIO2 C Modified)  
Reactive Silica

**(Sulfide - Water)**

TM WET 057-10; Total Sulfide in Aqueous Solutions by Automated Gas Dialysis (APHA 4500 S2-E Modified)  
Sulfide

**(Suspended Solids - Water)**

TM WET 056-10; Total Suspended Solids in Water and Wastewater Dried at 104° C (APHA 2540 D,E Modified)  
Fixed Suspended Solids  
Total Suspended Solids  
Volatile Suspended Solids

**(Thiocyanate - Water)**

TM WET 096-10; Thiocyanate in Water and Wastewater by Colorimetric Centripetal Analyzer (APHA 4500 CN- M Modified)  
Thiocyanate

**(Total Metals - Water)**

TM METAL 080-10; Metals in Aqueous Solutions by ICP (APHA 3120 B; APHA 3030F Modified)  
Total Calcium  
Total Iron  
Total Magnesium  
Total Manganese  
Total Phosphorus  
Total Potassium  
Total Silicon

Total Sodium

Total Sulfur

**(Total Metals - Water)**

TM METAL 081-10;

Trace Metals in Aqueous Solutions by ICP-MS (EPA 200.8 Modified)

Total Aluminum

Total Antimony

Total Arsenic

Total Barium

Total Beryllium

Total Bismuth

Total Boron

Total Cadmium

Total Chromium

Total Cobalt

Total Copper

Total Lead

Total Lithium

Total Molybdenum

Total Nickel

Total Selenium

Total Silver

Total Strontium

Total Thallium

Total Tin

Total Titanium

Total Uranium

Total Vanadium

Total Zinc

Total Zirconium

**(Turbidity - Water)**

TM WET 064-10;

Turbidity in Water and Wastewater by Nephelometric Method (APHA 2130 B Modified)

Turbidity

**Water (Organic)**

**(BTEX - Water)**

TM ORG 001-10;

BTEX and F1 in Water Samples by MSD/FID (EPA 5035/8260B/8021B Modified)

Benzene  
Ethylbenzene  
m/p-Xylene  
o-Xylene  
Toluene

**(Petroleum Hydrocarbons (PHC) - Water)**

TM ORG 001-10;                    BTEX and F1 in Soil Samples by GC/MSD/FID  
(CCME-CWS-PHCS-TIER 1 Modified)  
F1: C6-C10

**Water (Toxicology)**

**(Microtox - Water)**

TM BIO 037-10;                    Microtox 15 Minute, Multiple Concentration, Acute, Static  
EC50 Bioassay (EPS 1/RM/24 Modified)  
Microtox EC 50 (15min)

**NON METALLIC MINERALS AND PRODUCTS**

**Petroleum Crudes and Natural Gas:**

**(Acid Neutralization Number)**

ASTM D 664                        Standard Test Method for Acid Number of Petroleum  
Products by Potentiometric Titration, Method A (TM OIL  
241-90)  
Acid Number, Method A

**(Asphaltenes: nC5 insoluble)**

TM OIL 200-90;                    Asphaltenes Content Of Crude Oil, Condensate And  
Bitumen (Syncrude Method 5.1, Modified)  
Asphaltene

**(Benzene Emissions)**

TM GAS 037-90                    Benzene Emissions Reduction Trailer Analysis

**(BS&W - Oil)**

TM OIL 040-90;

Sediment and Water (BS&W) in Crude & Fuel Oils:  
Centrifuge Method (ASTM D 4007 Modified)

**(Composition - Liquid Hydrocarbon)**

- TM GAS 015-90 High Pressure Liquid Analysis (D 5307 modified)  
Only for: N<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>S, C<sub>1</sub>-C<sub>30+</sub>, Benzene, Toluene, Ethylbenzene & p+m Xylene, o-Xylene, 1,2,4 Trimethylbenzene, Cyclopentane, Methylcyclopentane, Cyclohexane, Methylcyclohexane, Density, Relative Molecular Mass and Gas Equivalent Factor
- TM GAS 016-90 Low Pressure Liquid Composition Analysis (D 5307 modified)  
Only for: H<sub>2</sub>S, C<sub>1</sub>-C<sub>30+</sub>, Benzene, Toluene, Ethylbenzene & p+m Xylene, o-Xylene, 1,2,4 Trimethylbenzene, Cyclopentane, Methylcyclopentane, Cyclohexane, Methylcyclohexane, Density, Relative Molecular Mass and Gas Equivalent Factor

**(Composition - Natural Gas)**

- TM GAS 023-90; Compositional Gas Analysis (GPA 2261 Modified)  
Only for: N<sub>2</sub>, CO<sub>2</sub>, C<sub>1</sub>-C<sub>10+</sub>, He, H<sub>2</sub>, H<sub>2</sub>S Density, Gross Heating Value, Pseudocritical Pressure and Temperature, Relative Molecular Mass (Total and C<sub>7+</sub>) and Vapour Pressure (C<sub>5+</sub>)
- TM GAS 028-90; Extended Gas Analysis (GPA 2286 Modified)  
Only for: N<sub>2</sub>, CO<sub>2</sub>, C<sub>1</sub>-C<sub>30+</sub>, He, H<sub>2</sub>, Density, Gross Heating Value, Pseudocritical Pressure and Temperature, Relative Molecular Mass (Total and C<sub>7+</sub>) and Vapour Pressure (C<sub>5+</sub>)

**(D86 Atmospheric Distillation)**

- TM OIL 150-90; D86 Atmospheric Distillation (ASTM D 86, Modified)

**(Density - Oil)**

- ASTM D 4052 Standard Test Method for Density and Relative Density of Crude Oils by Digital Density Meter Absolute Density, Relative Density, API Gravity (TM OIL 050-90)

**(Flash Point - Closed Cup)**

- ASTM D 93 Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester (TM OIL 171-90)  
Flash Point

**(LPG or NGL Composition)**

TM GAS 009-90; NGL or LPG Compositional Analysis (ASTM D 2163 Modified)  
Only for: N<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>S, C<sub>1</sub>-C<sub>12</sub>+, Density, Relative Molecular Mass and Gas Equivalent Factor

**(Organic Chloride Content in Crude Oil)**

ASTM D 4929 Standard Test Methods for Determination of Organic Chloride Content in Crude Oil (TM OIL 076-90)  
Organic Chloride, Method A

**(Reduced Sulfur Species - Gas)**

TM GAS 014a-90 Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence (ASTM D 5504; Modified)  
Only for: Hydrogen sulfide, Carbonyl Sulfide, Sulfur Dioxide, MethylMercaptan, EthylMercaptan, DimethylSulfide, Carbon Disulfide, i-PropylMercaptan, t-ButylMercaptan, n-PropylMercaptan, MethylEthylSulfide, s-ButylMercaptan, i-ButylMercaptan, Diethylsulfide, n-ButylMercaptan, Dimethyl disulfide

**(Total Sulfur - Oil)**

TM OIL 060-90 Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectroscopy Total Sulfur (ASTM D 4294 Modified)

**Notes:**

**AOAC:** Official Methods of Analysis International

**ASTM:** American Society of Testing and Materials

**APHA:** Standard Methods for the Examination of Water & Wastewater

**BCMOE:** British Columbia Ministry of Environment

**CAN-P-4E (ISO/IEC 17025):** General Requirements for the Competence of Testing and Calibration Laboratories (ISO/IEC 17025: 2005)

**CAN-P-1585:** Requirements for the Accreditation of Environmental Testing Laboratories

**EPA:** Environmental Protection Agency

**PREP #, BIO #, WET #, ORG #, METAL #, SOIL #, GAS #, OIL #, TO #, WQ #:** Exova in-house Test Methods.

**GPA:** Gas Processors Association

**MSS:** Manual on Soil Sampling and Methods of Analysis - J.A. McKeague, 1978

**SMAA:** Soil Sampling and Methods of Analysis, Martin R. Carter, 2008

**SSA:** Soil Science Society of America

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S. Cross, Director, Conformity Assessment

Date: 2010-09-28

Number of Scope Listings: 92

SCC 1003-15/31

Partner File #0

Partner: SCC