

## TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

### Scope of Accreditation

**Legal Name of Accredited Laboratory:** **Kinectrics Inc.**

Location Name or Operating as (if applicable): Analytical and Environmental Services Laboratory

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<b>SCC File Number:</b>	15313
<b>Accreditation Standard(s):</b>	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories
<b>Fields of Testing:</b>	Biological Chemical/Physical Ionizing Radiation
<b>Program Specialty Area:</b>	Environmental Testing (ET)
<b>Initial Accreditation:</b>	1996-02-15
<b>Most Recent Accreditation:</b>	2023-12-02
<b>Accreditation Valid to:</b>	2028-02-15

### ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY

**Environmental:**

**Air Filter**

TWI_ICPXX	Determination of metals in solid and liquid matrices by ICPAES Cd, Cu, Fe, Pb, S, Zn
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### Petroleum Products

TWI_ARV	Determination of air release properties of petroleum products Air release time
TWI_Bleed	Determination of oil separation of lubricating greases by pressure filtration Bleed
TWI_BleedCS	Determination of oil separation of lubricating greases by conical sieve Bleed
TWI_Cloud	Determination of cloud point of petroleum products by visual observation Cloud point
TWI_Colour	Determination of colour value of petroleum products by a colourimeter Oil colour
TWI_CSC	Determination of corrosive sulphur in insulating oil by measuring copper corrosion Corrosive sulphur
TWI_FTIR-DBPC	Determination of 2,6-di-t-butyl-p-cresol in electrical insulating oil by infrared absorption DBPC %
TWI_DielbrkdownStrength	Determination of breakdown voltage of insulating oil by measuring the dielectric strength Breakdown voltage
TWI_GCGASTST	Determination of dissolved gases in oil by vacuum extraction gas chromatography H <sub>2</sub> , N <sub>2</sub> , O <sub>2</sub> , CO, CO <sub>2</sub> , CH <sub>4</sub> , C <sub>2</sub> H <sub>2</sub> , C <sub>2</sub> H <sub>4</sub> , C <sub>2</sub> H <sub>6</sub>
TWI_Flash Point COC	Determination of flash/fire point of oils/organic liquids by Cleveland open cup visual observation Flashpoint
TWI_Flash Point PMCC	Determination of flash point of oils/organic liquids by Pensky-Martens by visual observation Flashpoint
TWI_Foam	Determination of foaming characteristics of lubricating oils Foam tendency / foam stability
TWI_Microbiology_Fuel_Oils	Enumeration of viable bacteria and fungi in liquid fuels using filtration and culture procedures Fungi and bacteria
TWI_LC Furan	Determination of 2-furfuraldehyde in transformer oils by liquid chromatography 2-Furfuraldehyde
TWI_Interfacial Tension Auto	Determination of interfacial tension at oil/water interface by an automatic tensiometer Interfacial tension

TWI_Neut or Tan No	Determination of neutralization (total acid) number of petroleum products by manual titration Neutralization number
TWI_Laser Part Count	Determination of particle count distribution in oils by laser particle counting Particles >4 mm, >6 mm, >14 mm, >25 mm, >38 mm, >70 mm, ISO-4, ISO-6, ISO-14
TWI_Penetration	Determination of cone penetration of lubricating greases Grease penetration
TWI_Pour Point	Determination of pour point of oil/petroleum products by visual observation Pour point
TWI_Powerfac	Determination of the power factor of oil by heat dissipation Power factor
TWI_RPVOT	Determination of oxidation of oils by rotating pressure vessel oxidation test Oxidation time
TWI_Relative Density	Determination of gravity of oils relative to water by API or relative density (specific gravity) Relative density
TWI_Rust	Determination of rusting of ferrous components with oils by visual observation Rust
TWI_Rust 2 HDM	Determination of rusting of ferrous components with oils by visual observation (horizontal disk method) Rust
TWI_Auto-Viscosity	Determination of kinematic viscosity of transparent and opaque liquids (and calculation of dynamic viscosity) Kinematic viscosity
TWI_KF Water	Determination of water content of petroleum products and insulating paper by Karl Fischer titration Water content
TWI_H2O.Sep	Determination of water separability of petroleum products Water separation
TWI_GC_PCB_OIL	Determination of polychlorinated biphenyls in mineral oil by gas chromatography - electron capture detection Aroclors 1242, 1254, 1260

**Soil/Sediment**

TWI_ICPMSXX	Determination of elements including all their isotopes in solid and liquid matrices by ICPMS Ag, Al, As, Au, B, Ba, Be, Bi, Br, Ca, Cd, Ce, Cl, Cm, Co, Cr, Cs, Cu, Dy, Eu, Er, Fe, Ga, Gd, Ge, Hf, Hg, Ho, I, In, Ir, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, Os, P, Pb, Pd, Pr, Pt, Pu, Ra, Rb, Re, Rh, Ru, S, Sb, Sc, Se, Si, Sm, Sn, Sr, Ta, Tb, Tc, Te, Ti, Th, Tl, Tm, U, V, W, Y, Yb, Zn, Zr
TWI_GC_ASE_PCB_SOIL	Determination of polychlorinated biphenyls in soil by accelerated solvent extraction (ASE) - gas chromatography - electron capture detection (GC-ECD) Aroclors 1242, 1254, 1260

**Water (Inorganic)**

TWI_CONH3	Determination of ammonia in aqueous media by colourimetry Ammonia
TWI_Conductivity	Determination of conductivity in water by electrode Electrolytic conductivity (25 °C)
TWI_ICPMSHG	Determination of mercury in aqueous solutions by ICPMS Hg
TWI_ICPMSXX	Determination of elements including all their isotopes in solid and liquid matrices by ICPMS Ag, Al, As, Au, B, Ba, Be, Bi, Br, Ca, Cd, Ce, Cl, Cm, Co, Cr, Cs, Cu, Dy, Eu, Er, Fe, Ga, Gd, Ge, Hf, Hg, Ho, I, In, Ir, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, Os, P, Pb, Pd, Pr, Pt, Pu, Ra, Rb, Re, Rh, Ru, S, Sb, Sc, Se, Si, Sm, Sn, Sr, Ta, Tb, Tc, Te, Ti, Th, Tl, Tm, U, V, W, Y, Yb, Zn, Zr
TWI_ICPXX	Determination of metals in solid and liquid matrices by ICPAES Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Cl, Co, Cr, Cu, Fe, Gd, K, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Ta, Ti, Th, Tl, U, V, W, Y, Zn, Zr
TWI_CON2H4	Determination of hydrazine in water by colourimetry Hydrazine
TWI_IC_ANIONS_WATER	Determination of inorganic anions in water by ion chromatography Bromide, chloride, fluoride, nitrate, nitrite, phosphate, sulfate
TWI_GC_MORPHWATER	Determination of morpholine in water by derivatization gas chromatography mass spectrometry (GC-MS) or gas chromatography flame ionization detector (GC-FID) Morpholine
TWI_PH	Determination of pH in water by electrode pH
TWI_COSIO2	Determination of dissolved molybdate - reactive silica in water by colourimetry Reactive silica

**Water (Organic)**

TWI_TOC_DOC	Determination of inorganic and organic carbon in water by combustion/infrared spectrometry TIC, TOC, DOC
TWI_OIL_WATER	Determination of solvent extractable material in water using hexane Solvent extractable material
TWI_GC_PCB_WATER	Determination of polychlorinated biphenyls in water by solvent extraction - gas chromatography - electron capture detection (GC-ECD) Aroclors 1242, 1254, 1260
TWI_GC_EXTR_EPH_WATER	Determination of total extractable petroleum hydrocarbons (C10-C50) in water by solvent extraction - gas chromatography (GC-FID) PHC F2 (C10-C16), F3 (C16-C34), F4 (C34-C50)
TWI_GCMS_VOC_WATER	Determination of volatile organic compounds in water by headspace - gas chromatography - mass spectrometry (GC-MS) Acetone, acrolein, acrylonitrile, benzene, bromodichloromethane, bromomethane, chlorobenzene, chlorodibromomethane, chloroethane, chloroethene, 2-chloroethyl vinyl ether, chloromethane, 1,2-dibromoethane, 1,2-dichlorobenzene, 1,3- dichlorobenzene, 1,4-dichlorobenzene, dichlorodifluoromethane, 1,1-dichloroethane, 1,2- dichloroethane, 1,1-dichloroethene, cis-1,2- dichloroethene, <i>trans</i> -1,2-dichloroethene, dichloromethane, 1,2-dichloropropane, <i>cis</i> -1,3-dichloropropene, <i>trans</i> -1,3-dichloropropene, ethylbenzene, n-hexane, methyl ethyl ketone, methyl isobutyl ketone, methyl t-butyl ether, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethene, tetrachloromethane, toluene, tribromomethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, trichlorofluoromethane, trichloromethane, vinyl acetate, o-xylene, m/p-xylene

**Water/Wastewater (Solids)**

TWI_TS_TDS_TSS	Determination of total solids, total suspended solids and total dissolved solids in water by gravimetry Total suspended solids, total dissolved solids, total solids
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### Radio-Chemistry

TWI_RALPHA FECES	Determination of U, Pu, Am and Cm isotopes in feces by alpha spectrometry $^{238}\text{Pu}$ , $^{239/240}\text{Pu}$ , $^{241}\text{Am}$ , $^{242}\text{Cm}$ , $^{244}\text{Cm}$
TWI_RALPHA URINE	Purification of Pu and U in urine for analysis by ICPMS and the analysis of U, Pu, Am and Cm isotopes in urine by alpha spectrometry $^{234}\text{U}$ , $^{235}\text{U}$ , $^{238}\text{U}$ , $^{238}\text{Pu}$ , $^{239/240}\text{Pu}$ , $^{241}\text{Am}$ , $^{242}\text{Cm}$ , $^{244}\text{Cm}$
TWI_RALPHA	Determination of isotopes of Am, Cm and Pu in water, soil, biota and air filters by alpha spectrometry $^{241}\text{Am}$ , $^{238}\text{Pu}$ , $^{239/240}\text{Pu}$ , $^{241}\text{Pu}$ , $^{242}\text{Cm}$ , $^{244}\text{Cm}$
TWI_RC14BQ	Determination of total carbon-14 in water, soil, biota and air filters by liquid scintillation $^{14}\text{C}$
TWI_RGAMMALL	Determination of gamma emitting radionuclides in water and solids by gamma spectrometry Man-made and naturally occurring radionuclides
TWI_RGBETABQ	Determination of gross alpha & beta activity in water, soil, biota, air filters and smears by gas-flow proportional counting Gross alpha, gross beta
TWI_RFE55BQX	Determination of iron-55 in water, solids, air filters, feces, urine, soil and vegetation by liquid scintillation counting $^{55}\text{Fe}$
TWI_RNI63BQX	Determination of nickel-63 in water, solids, air filters, feces, urine, soil and vegetation by liquid scintillation counting $^{63}\text{Ni}$
TWI_RALRA226BQX	Determination of radium-226 in water by alpha spectrometry $^{226}\text{Ra}$
TWI_RSRXBQ	Determination of strontium 89 & 90 in water, urine, feces, soil, biota and air filters by gas flow proportional counting and liquid scintillation counting $^{89}\text{Sr}$ , $^{90}\text{Sr}$
TWI_RH3BQ	Determination of tritium in water, soil and biota by liquid scintillation $^3\text{H}$

### Water (Toxicology)

TWI_DM_Acute_Toxicity	Determination of acute toxicity in water using <i>Daphnia magna</i> <i>Daphnia magna</i> pass/fail or LC50 (48 h)
TWI_Trout_Acute_Toxicity	Determination of acute toxicity in water using rainbow trout Rainbow trout pass/fail or LC50 (96 h)

**(Metals)**

TWI_Gases in Metals by TDMS	Determination of dissolved gases in metals by thermal desorption - mass spectrometry Hydrogen, deuterium
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**Occupational Health and Safety:**

**Personal Protection (Medical Mask Testing)**

ASTM F2100	Standard specification for performance of materials used in medical face masks
ASTM F2299 / F2299M	Determining the initial efficiency of materials used in medical face masks to penetration by particulates using latex spheres, supplemented by TWI_PFE
ASTM F2101 / EN 14683 Annex B	Evaluating the bacterial filtration efficiency (BFE) of medical face mask material, using a biological aerosol of <i>Staphylococcus aureus</i> , supplemented by TWI_BFE
EN 14683 Annex C	Method for determination of breathability (Differential Pressure), supplemented by TWI_DIFFPRES
ASTM F1862 / F1862M / EN 14683	Resistance of medical face masks to penetration by synthetic blood (Horizontal projection of fixed volume at a known velocity), supplemented by TWI_MASKBLOOD
16 CFR PART 1610	Standard for the flammability of clothing textiles, supplemented by TWI_FLAME

**Personal Protection (Respirator Testing)**

TWI_N95PFE	Method for Determination of Particulate Filter Efficiency Level for N95 Series Filters Against Solid Particulate as per NIOSH TEB-APR-STP-0059 and CA-95 filters per CSA Z94.4.1 For: non-powered, air-purifying respirators
TWI_N95DIFFPRES	Method for Determination of Inhalation and Exhalation Resistance for Air-purifying Respirators as per NIOSH Procedures TEB-APR-STP-0003 and TEB-APR-STP-0007 and CSA Z94.4.1

**Personal Protection (Barrier Face Coverings)**

ASTM F3502 Section 8.1 & 8.2	Method for Determination of Particulate Filter Efficiency and Breathability for Barrier Face Coverings as per ASTM F3502, supplemented by TWI_BARRIER_PFE_DP
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**Personal Protection (Gowns)**

TM 042	Water Resistance: Impact Penetration Test Supplemented by TWI_WATERRESIST
TM 127	Water Resistance: Hydrostatic Pressure Test Supplemented by TWI_HYDROTEST
ASTM F1670	Method for Resistance of Materials Used in Protective Clothing to Penetration by Synthetic blood as per ASM 1670/F1670M Supplemented by TWI_BLOODGOWN

Number of Scope Listings: 73

**Notes:**

ISO/IEC 17025: General Requirements for the Competence of Testing and Calibration Laboratories  
 ASTM: Formerly known as American Society for Testing and Materials  
 CSA: Canadian Standards Association  
 CFR: Code of Federal Regulations, USA  
 EN: European Standard  
 TWI: In-house Technical Work Instruction

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at [www.scc.ca](http://www.scc.ca).

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