SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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CHEMICAL

Valid To: February 28, 2025 Certificate Number: 5669.10

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on: leachates waters (raw, effluent, leachate and groundwater), waste waters (untreated and treated domestic and industrial waste water), saline waters, potable water, soils and metals:

Test(s):	**Test Method(s):**
Waters (Leachates, Waste & Saline) Elemental Analysis by **ICP-MS** (Al, As, Ag, Ba, Be, B, Cd, Ca, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Se, Sb, Si, Sn, Sr, Ti, Tl, U, V, Zn)	USEPA 3050B, 3125 EL-M-OP-CH-AKB-MD133
Waters (Potable) Elemental Analysis by **ICP-MS** (Al, As, Ag, Ba, Be, B, Cd, Ca, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Se, Sb, Si, Sn, Sr, Ti, Tl, U, V, Zn)	APHA 3125 EL-M-OP-CH-AKB-MD131
Ion Chromatography – Determination of Anions: Fluoride Chloride Bromide Nitrate Nitrite Sulphate Ortho - phosphate (Waters – Potable)	APHA 4110B EL-M-OP-CH-AKB-MD322
Ion Chromatography – Determination of Bromate Chlorate Chlorite (Waters – Potable)	APHA 4110B EL-M-OP-CH-AKB-MD320B
FTIR – Oil and Grease (Waters – Potable)	ASTM D7678 EL-M-OP-CH-AKB-MD414
Oil and Grease (Waters – Saline)	APHA 5220B (Gravimetric); EL-M-OP-CH-AKB-MD414A by Gravimetric

Test(s):	Test Method(s):
Waters (Potable & Saline) & Soils Semi Volatile Organic Compounds (**SVOC**s) and Polycyclic Aromatic Hydrocarbon (**PAHs**) by GC-MS including: Azobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobenzene Nitrobenzene 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-Chlorophenol 2,4-Dichlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol o-Cresol p-Cresol 2-Nitrophenol 2,4-Dimethylphenol 4-Chloro-3-methylphenol Dimethyl phthalate Diethyl phthalate Bis (2-ethylhexyl) phthalate Butyl benzylphthalate Di-n-butylphthalate Di-n-octylphthalate 4-Chlorodiphenylether 4-Bromophenyl phenylether Dibenzofuran Isophorone Hexachloroethane n-nitrosodi-n-propylamine Bis (2-chloroisopropyl) ether Bis (2-chloroethyl) ether n-nitrosodimethylamine Bis (2-chloroethoxy) metyhane 4-Chloroaniline 2-Nitroaniline Hexachlorobutadiene Hexachlorocyclopentadiene Naphthalene 2-Methylnaphthalene 2-Chloronaphthalene Naphthalene Acenaphthene Acenaphthylene Anthracene Carbazole Benzo (a) anthracene Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (g, h ,i) preylene Benzo (a) pyrene	EPA 8270 E EL-M-OP-CH-AKB-MD406 for SVOC's EL-M-OP-CH-AKB-MD403B for PAH in Soils EL-M-OP-CH-AKB-MD403A for PAH in Water

Test(s):	Test Method(s):
Waters (Potable & Saline) & Soils Semi Volatile Organic Compounds (**SVOC**s) and Polycyclic Aromatic Hydrocarbon (**PAHs**) by GC-MS (cont'd) including: Chrysene Fluorene Fluoroanthene Dibenze (a, h) anthracene Ideno(1, 2, 3 - c, d)Pyrene Phenathrene Pyrene	
Waters & Soils Extractable Petroleum Hydrocarbons (**EPH**) and Total Petroleum Hydrocarbons (TPH) (>C10 to C40) by **GC-FID**	EPA 8015 EL-M-OP-CH-AKB-MD401
Waters (Potable, Effluent & Saline) & Soils Volatile Organic Compounds (**VOCs**) by **GC-MS** Headspace, including: Dichlorodifluoromethane Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethane Methylene Chloride Methyl Tert-butyl ether (MTBE) trans-1,2 Dichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethane 2,2-Dichloropropane Bromochloromethane Chloroform Carbon tetrachloride 1,1,1-Trichloroethane 1,1-Dichloropropene Benzene 1,2-Dichloroethane tert-Amylmethylether (TAME) Trichloroethene 1,2-Dichloropropane Bromodichloromethane Dibromomethane Toluene cis-1,3-Dichloropropene trans-1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene Chlorodibromomethane 1,2-Dibromoethane 1,3-Dichloropropane Ethylbenzene 1,1,1,2-Tetrachloroethane Chlorobenzene	EPA 5021 EPA 8260 D EL-M-OP-CH-AKB-MD404
Test(s):	**Test Method(s):**

Waters (Potable, Effluent & Saline) & Soils Volatile Organic Compounds (**VOCs**) by **GC-MS** Headspace, (cont'd) including: m, p - Xylene o-Xylene Bromoform Styrene Isopropylbenzene Bromobenzene n-Propylbenzene 1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane 1,3,5-trimethylbenzene 2-Chlorotoluene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene 4-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dibromo-3-Chloropropane 1,2-Diclorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene Tertiary-Butyl alcohol (Waters - potable, effluent, saline waters & soils)	
Waters (Potable, Effluent & Saline) Soils GC-FID Headspace; Volatile Petroleum Hydrocarbons C5 - C10 (**VPH**) MTBE Benzene Toluene Ethylbenzene m-Xylene o-Xylene p-Xylene	EPA 5021 EPA 8015 EL-M-OP-CH-AKB-MD405
Waters:	
Conductivity	APHA 2150B (Electrode) EL-M-OP-CH-AKB-MD201
Alkalinity	APHA 2320 (Titration) EL-M-OP-CH-AKB-MD210
Hardness	APHA 2340B (ICP-MS and Calculation) EL-M-OP-CH-AKB-MD211 APHA 2340C (Titration)
TDS	APHA 2540C (Electrode / Gravimetric) ASTM D5907 EL-M-OP-CH-AKB-MD208
TSS	APHA 2540D (Gravimetric) ASTM D5907 EL-M-OP-CH-AKB-MD209
Test(s):	**Test Method(s):**

pH	APHA 4500 H + B (Electrode) ASTM D1293 EL-M-OP-CH-AKB-MD301
Residual Chlorine	APHA 4500Cl (Spectrophotometer) Hach 8167 (Total Chlorine) Hach 8021 (Free Chlorine)
TOC	APHA 5310B (OX-IR) EL-M-OP-CH-AKB-MD319
Soils:	
Chloride	BS 1377-3 (Titration)
Total Sulfate	BS 1377-3 (Gravimetric)
Elemental Analysis (Al, As, Ag, Ba, Be, B, Cd, Co, Cr, Cu, Fe, Hg, Li, Mn, Mo, Na, Ni, Pb, Se, Sb, Sn, Sr, Ti, Tl, U, V, Zn)	APHA 3125 (ICP-MS) EL-M-OP-CH-AKB-MD112
pH	BS 1377-3 (Electrode)
Metals:	
Elemental Analysis by OES using Direct Reading Optical Emission Spectrometry techniques	ASTM E415 EL-M-OP-CH-AKB-MD101
Analysis of Irons, Steels and Stainless Steels – Agilent ICP-OES	ASTM A751 EL-M-OP-CH-AKB-MD107
Analysis of Nickel Alloy by ICP-OES	ASTM A751 ASTM E2594 EL-M-OP-CH-AKB-MD110
Carbon and Sulfur by Combustion	ASTM E1019 EL-M-OP-CH-AKB-MD119
Total Nitrogen by Inert Gas Fusion	ASTM E1019 EL-M-OP-CH-AKB-MD128
PCBs in Water and Soils by GC-MS 2,4-Dichlorobiphenyl (PCB-7) 2,2,5-Trichlorobiphenyl (PCB-18) 2,4,4-Trichlorobiphenyl (PCB-28) 2,2,3,5-Tetrachlorobiphenyl (PCB-43) 2,2,5,5-Tetrachlorobiphenyl (PCB-52) 2,3,4,4-Tetrachlorobiphenyl (PCB-60) 3,3,4,4-Tetrachlorobiphenyl (PCB-77) 2,2,4,5,5-Pentachlorobiphenyl (PCB-101) 2,3,3,4,4-Pentahlorobiphenyl (PCB-105) 2,3,4,4,5-Pentachlorobiphenyl (PCB-114) 3,3,4,4,5-Pentachlorobiphenyl (PCB-126) 2,2,3,3,4,4-Hexachlorobiphenyl (PCB-128) 2,2,3,4,4,5-Hexachlorobiphenyl (PCB-137) 2,2,4,4,5,5-Hexachlorobiphenyl (PCB-153) 2,2,3,3.4,4,5-Heptachlorobiphenyl (PCB-170) 2,2,3,4,4,5,5-Heptachlorobiphenyl (PCB-180) 2,2,3,4,5,5,6-Heptachlorobiphenyl (PCB-185) 2,2,3,3,4,4,5,6-Octachlorobiphenyl (PCB-195) 2,2,3,3,4,4,5,5,6-Nonachlorobiphenyl (PCB-206) 2,2,3,3,4,4,5,5,6,6-Decachlorobiphenyl (PCB-207)	EPA 8270 E EL-M-OP-CH-AKB-MD416 PCB in Water and Soils
Aggregates	
Chloride (Water and Acid Soluble)	BS EN 1744-1
Total Sulphate (Water and Acid Soluble)	BS EN 1744-1
Hardened Concrete	
Chloride (Water and Acid Soluble)	BS 1881-124
Total Sulphate (Water and Acid Soluble)	BS 1881-124

Accredited Laboratory

A2LA has accredited

ELEMENT SAUDI ARABIA COMPANY LIMITED

Dammam, Saudi Arabia

for technical competence in the field of

Chemical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 13th day of April 2023.

Mr. Trace McInturff, Vce President, Accreditation Services
For the Accreditation Council
Certificate Number 5669.10
Valid to February 28, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Chemical Scope of Accreditation.