

Quality And Accreditation Institute

Centre for International Accreditation

(formerly Centre for Laboratory Accreditation)



Certificate of Accreditation

Laboratories for the Environment, Agriculture, and Food (LEAF)

American University of Beirut, Beirut, Lebanon

has been assessed and accredited in accordance with the Standard

ISO/IEC 17025:2017

“General Requirements for the Competence of Testing and Calibration Laboratories”

In the field of

Testing

*This certificate remains valid for the Scope of Accreditation as specified
in the annexure subject to continued compliance to the above standard &
any other requirements specified by QAI.*



QAI/CIA/TL/2025/0141

Valid from: 03 October 2025

Valid until: 02 October 2028

A handwritten signature in black ink, appearing to read 'Bhupendra'.

Dr. Bhupendra Kumar Rana
Chief Executive Officer

A handwritten signature in black ink, appearing to read 'Vikram'.

Prof. Vikram Kumar
Chair, CIA



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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Water		
1.	Water	Nitrate	HACH 8039/Spectrophotometer
2.		Nitrite	HACH 8507/Spectrophotometer
3.		Ammonia	HACH 8155/Spectrophotometer
4.		Sulphate	HACH 8051/Spectrophotometer
5.		pH	HACH 8056/APHA 4500-H+/EPA Method 9045D – Soil and Waste pH meter- Electrode
6.		Turbidity	HACH 8237/Spectrophotometer
7.		Total Organic Carbon	HACH 10129-HACH 10128-HACH 10173/Spectrophotometer
8.		Conductivity	APHA 2510/Electrode
9.		Phosphate	HACH 8048/Spectrophotometer
10.		Total Nitrogen	HACH 10071-HACH 10072/Spectrophotometer
11.		Alkalinity	HACH 8221/Titration
12.		Total Hardness	HACH 8226/Titration
13.		Calcium Hardness	HACH 8222/Titration
14.		Chloride	HACH 8225/Titration
15.		Total Suspended solids	HACH 8158/Muffle Furnace
16.		Oil and grease	HACH 10056/Rotary evaporator

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Water		
17.	Water	Total chlorine	HACH 8167/Spectrophotometer
18.		Free chlorine	HACH 8021/Spectrophotometer
19.		Fluoride	HACH 8029/Spectrophotometer
20.		Cyanide (Free/total)	HACH 8027/Spectrophotometer
21.		Anionic surfactants as MBAS	APHA 5540 C/Spectrophotometer
22.		Hexavalent chromium	HACH 8023/Spectrophotometer
23.		Color	HACH 8025/Spectrophotometer



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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Residues and Contaminants in Water		
		Trace Elements/Heavy Metals:	
1.		Aluminium	
2.		Antimony	
3.		Lead	
4.		Cadmium	
5.		Chromium	
6.		Lithium	
7.		Beryllium	
8.		Boron	
9.	Water	Titanium	EPA 6020B/ICP-MS
10.		Vanadium	
11.		Manganese	
12.		Iron	
13.		Cobalt	
14.		Nickel	
15.		Copper	
16.		Zinc	
17.		Arsenic	
18.		Selenium	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Residues and Contaminants in Water		
19.	Water	Molybdenum	EPA 6020B/ICP-MS
20.		Silver	
21.		Tin	
22.		Barium	
23.		Mercury	
24.		Thallium	
25.		Uranium	
26.		Strontium	
27.		Calcium	
28.		Potassium	
29.		Sodium	
30.		Magnesium	
31.		Phosphorous	
	Water	Volatile organic compounds:	EPA 524.2 GC-MS Purge and Trap
32.		Benzene	
33.		Bromobenzene	
34.		Bromochloromethane	
35.		Bromodichloromethane	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Residues and Contaminants in Water		
36.	Water	Bromoform	EPA 524.2 GC-MS Purge and Trap
37.		n-Butyl Benzene	
38.		tert Butyl Benzene	
39.		sec Butyl Benzene	
40.		Carbon tetrachloride	
41.		Chlorobenzene	
42.		Chloroform	
43.		4-Chlorotoluene	
44.		2-Chlorotoluene	
45.		1,2-Dibromo-3-chloropropane	
46.		Dibromochloromethane	
47.		1,2-Dibromoethane	
48.		Dibromomethane	
49.		1,3-Dichlorobenzene	
50.		1,2-Dichlorobenzene	
51.		1,4-Dichlorobenzene	
52.		1,1-Dichloroethane	



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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Residues and Contaminants in Water		
53.	Water	1,2-Dichloroethane	EPA 524.2 GC-MS Purge and Trap
54.		cis-1,2-Dichloroethene	
55.		trans-1,2-Dichloroethene	
56.		1,1-Dichloroethene	
57.		1,2-Dichloropropane	
58.		1,3-Dichloropropane	
59.		1,1-Dichloropropene	
60.		cis-1,3-Dichloro-1-propene	
61.		trans-1,3-Dichloro-1-propene	
62.		Isopropylbenzene	
63.		p-Isopropyltoluene	
64.		Naphthalene	
65.		n-Propyl Benzene	
66.		Styrene	
67.		1,1,1,2-Tetrachloroethane	
68.		1,1,2,2-Tetrachloroethane	
69.		Tetrachloroethene	
70.		Toluene	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Residues and Contaminants in Water		
71.	Water	1,2,3-Trichlorobenzene	EPA 524.2 GC-MS Purge and Trap
72.		1,2,4-Trichlorobenzene	
73.		1,1,1-Trichloroethane	
74.		1,1,2-Trichloroethane	
75.		Trichloroethene	
76.		1,2,3-Trichloropropane	
77.		1,2,4-Trimethylbenzene	
78.		1,3,5-Trimethylbenzene	
79.		Ethyl benzene	
80.		m-Xylene	
81.		p-Xylene	
82.		o-Xylene	
	Water	Organochlorine Pesticides (OCP):	EPA 608/508.1 M SPE-GC/ECD
83.		Alpha-BHC	
84.		Gamma-BHC (Lindane)	
85.		Beta-BHC	
86.		Heptachlor	
87.		Delta-BHC	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Residues and Contaminants in Water		
88.	Water	Aldrin	EPA 608/508.1 M SPE-GC/ECD
89.		Heptachlor Epoxide	
90.		Endosulfan I	
91.		Dieldrin	
92.		Endrin	
93.		4,4'DDE	
94.		Endosulfan II	
95.		4,4'DDD	
96.		4,4'DDT	
97.		Endrin Aldehyde	
98.		Endosulfan Sulfate	
	Water	Polycyclic aromatic hydrocarbons (PAHs):	EPA 525.3 M-SPE- GC/MS
99.		Acephthylene	
100.		Anthracene	
101.		Benzo(a)anthracene	
102.		Benzo(a)pyrene	
103.		Benzo(b)fluoranthene	
104.		Benzo(k)fluoranthene	
105.		Benzo(g,h,ib) perylene	



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Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Residues and Contaminants in Water		
106.	Water	Chrysene	EPA 525.3 M-SPE- GC/MS
107.		Dibenzo(a,h)anthracene	
108.		Fluorene	
109.		Fluoranthene	
110.		Indeno(1,2,3-cd) pyrene	
111.		Naphthalene	
112.		Phenanthrene	
113.		Pyrene	
114.		2,4-Dinitrotoluene	
115.		2,6-Dinitrotoluene	
	Water	Polychlorinated biphenyl (PCBs):	EPA 525.3 M-SPE-GC/MS
116.		PCB1	
117.		PCB5	
118.		PCB29	
119.		PCB47	
120.		PCB98	
121.		PCB154	
122.		PCB171	
123.		PCB201	



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Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
		Trace Elements/Heavy Metals :	
1.		Aluminium	
2.		Antimony	
3.		Chromium	
4.		Lithium	
5.		Beryllium	
6.		Boron	
7.		Titanium	
8.	Waste Water	Vanadium	EPA 6020B/ICP-MS
9.		Manganese	
10.		Iron	
11.		Cobalt	
12.		Nickel	
13.		Copper	
14.		Zinc	
15.		Arsenic	
16.		Selenium	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
17.	Waste Water	Molybdenum	EPA 6020B/ICP-MS
18.		Silver	
19.		Cadmium	
20.		Tin	
21.		Barium	
22.		Mercury	
23.		Lead	
24.		Phosphorous	
25.	Waste Water	BOD	APHA 5210D/ Respirometer
26.		COD (Low Range)	HachLCK314/ Spectrophotometer
27.		COD (Medium Range)	HachLCK514/ Spectrophotometer
28.		COD (High Range)	HachLCK014/ Spectrophotometer
29.	Waste Water	Nitrate	HACH 8039/Spectrophotometer
30.		Nitrite	HACH 8507/Spectrophotometer
31.		Ammonia	HACH 8155/Spectrophotometer
32.		Sulfate	HACH 8051/Spectrophotometer
33.		pH	HACH 8056/APHA 4500-H+/EPA pH meter-Electrode



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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
34.	Waste Water	Turbidity	HACH8237/Spectrophotometer
35.		Total Organic Carbon	HACH 10129-HACH 10128-HACH 10173/Spectrophotometer
36.		Conductivity	APHA 2510/Electrode
37.		Phosphate	HACH8048/ Spectrophotometer
38.		Total Nitrogen	HACH 10071-HACH 10072/Spectrophotometer
39.		Alkalinity	HACH 8221/Titration
40.		Total Hardness	HACH 8226/Titration
41.		Calcium Hardness	HACH 8222/Titration
42.		Chloride	HACH 8225/Titration
43.		Total Suspended solids	HACH8158/ Muffle Furnace
44.		Oil and grease	HACH 10056/ Rotary evaporator
	Waste Water	Volatile organic compounds:	EPA 524.2/602-GC-MS Purge and Trap
45.		Benzene	
46.		Bromobenzene	
47.		Bromochloromethane	
48.		Bromodichloromethane	
49.		Bromoform	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
50.	Waste Water	n-Butyl Benzene	EPA 524.2/602-GC-MS Purge and Trap
51.		tert Butyl Benzene	
52.		sec Butyl Benzene	
53.		Carbon tetrachloride	
54.		Chlorobenzene	
55.		Chloroform	
56.		4-Chlorotoluene	
57.		2-Chlorotoluene	
58.		1,2-Dibromo-3-chloropropane	
59.		Dibromochloromethane	
60.		1,2-Dibromoethane	
61.		Dibromomethane	
62.		1,3-Dichlorobenzene	
63.		1,2-Dichlorobenzene	
64.		1,4-Dichlorobenzene	
65.		1,1-Dichloroethane	
66.		1,2-Dichloroethane	



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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
67.	Waste Water	cis-1,2-Dichloroethene	EPA 524.2/602-GC-MS Purge and Trap
68.		trans-1,2-Dichloroethene	
69.		1,1-Dichloroethene	
70.		1,2-Dichloropropane	
71.		1,3-Dichloropropane	
72.		1,1-Dichloropropene	
73.		cis-1,3-Dichloro-1-propene	
74.		trans-1,3-Dichloro-1-propene	
75.		Isopropylbenzene	
76.		p-Isopropyltoluene	
77.		Naphthalene	
78.		n-Propyl Benzene	
79.		Styrene	
80.		1,1,1,2-Tetrachloroethane	
81.		1,1,2,2-Tetrachloroethane	
82.		Tetrachloroethene	
83.		Toluene	
84.		1,2,3-Trichlorobenzene	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
85.	Waste Water	1,2,4-Trichlorobenzene	EPA 524.2/602-GC-MS Purge and Trap
86.		1,1,1-Trichloroethane	
87.		1,1,2-Trichloroethane	
88.		Trichloroethene	
89.		1,2,3-Trichloropropane	
90.		1,2,4-Trimethylbenzene	
91.		1,3,5-Trimethylbenzene	
92.		Ethyl benzene	
93.		m-Xylene	
94.		p-Xylene	
95.		o-Xylene	
	Wastewater	Organochlorine Pesticides (OCP):	EPA 608/508.1 M-SPE-GC/ECD
96.		Alpha-BHC	
97.		Gamma-BHC (Lindane)	
98.		Beta-BHC	
99.		Heptachlor	
100.		Delta-BHC	
101.		Aldrin	



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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
102.	Wastewater	Heptachlor Epoxide	EPA 608/508.1 M-SPE-GC/ECD
103.		Endosulfan I	
104.		Dieldrin	
105.		Endrin	
106.		4,4'DDE	
107.		Endosulfan II	
108.		4,4'DDD	
109.		4,4'DDT	
110.		Endrin Aldehyde	
111.		Endosulfan Sulfate	
	Wastewater	Polycyclic aromatic hydrocarbons (PAHs):	EPA 8270E-EPA 610 SPE- GC/MS
112.		Acephthylene	
113.		Anthracene	
114.		Benzo(a)anthracene	
115.		Benzo(a)pyrene	
116.		Benzo(b)fluoranthene	
117.		Benzo(k)fluoranthene	
118.		Benzo(g,h,ib)perylene	



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Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
119.	Wastewater	Chrysene	EPA 8270E-EPA 610 SPE- GC/MS
120.		Dibenzo(a,h)anthracene	
121.		Fluorene	
122.		Indeno(1,2,3-cd) pyrene	
123.		Naphthalene	
124.		Phenanthrene	
125.		Pyrene	
126.		2-methylnaphthalene	
127.		2,4-Dinitrotoluene	
128.		2,6-Dinitrotoluene	
	Wastewater	Polychlorinated biphenyl (PCBs):	EPA 8082A/1668C-GC/ECD
129.		PCB 28	
130.		PCB 31	
131.		PCB 52	
132.		PCB 101	
133.		PCB 118	
134.		PCB 138	
135.		PCB 149	



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Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
136.	Wastewater	PCB 153	EPA 8082A/1668C-GC/ECD
137.		PCB 170	
138.		PCB 180	
139.		PCB194	
140.		PCB198	
141.		Anionic surfactants as MBAS	APHA 5540 C/Spectrophotometer
142.		Hexavalent chromium	HACH8023/ Spectrophotometer
	Solid Waste	Trace Elements/Heavy Metals:	EPA 6020B/ICP-MS, Microwave digestion
143.		Lead	
144.		Cadmium	
145.		Barium	
146.		Chromium	
147.		Boron	
148.		Titanium	
149.		Vanadium	
150.		Manganese	
151.		Iron	
152.		Cobalt	
153.		Nickel	
154.		Copper	

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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
155.	Solid Waste	Zinc	EPA 6020B/ICP-MS, Microwave digestion
156.		Arsenic	
157.		Selenium	
158.		Molybdenum	
159.		Cadmium	
160.		Mercury	
161.		Lead	
162.		Calcium	
163.		Magnesium	
164.		Phosphorous	
165.		Sodium	
166.		pH	HACH 8056/APHA 4500-H+/EPA Method 9045D – Soil and Waste Ph Meter-Electrode
167.		Conductivity	APHA 2510 Electrode
168.		Moisture	EU: EN 14346/Muffle Furnace
169.		Loss of ignition (Ash)	EN 15935:2021/Muffle Furnace
	Solid Waste	Polycyclic aromatic hydrocarbons (PAHs):	EPA 8270E SPE-Digestion-GC/MS
170.		Acenaphthene	
171.		Acephthylene	
172.		Anthracene	

This is annexure to 'Certificate of Accreditation' and does not require any signature.

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Scope of Accreditation

Laboratories for the Environment, Agriculture, and Food (LEAF)

American University of Beirut, Beirut, Lebanon

QAI/CIA/TL/2025/0141

Valid from: 03 October 2025

Valid until: 02 October 2028

Accreditation Standard: ISO/IEC 17025:2017

Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
173.	Solid Waste	Benzo(a)anthracene	EPA 8270E SPE-Digestion-GC/MS
174.		Benzo(a)pyrene	
175.		Benzo(b)fluoranthene	
176.		Benzo(k)fluoranthene	
177.		Benzo(g,h,ib) perylene	
178.		Chrysene	
179.		Dibenzo(a,h)anthracene	
180.		Fluoranthene	
181.		Fluorene	
182.		Indeno (1,2,3-cd) pyrene	
183.		Naphthalene	
184.		Phenanthrene	
185.		Pyrene	
186.		2-methylnaphthalene	
	Solid Waste	Polychlorinated biphenyl (PCBs):	EPA 8082A/1668C-GC-ECD
187.		PCB 28	
188.		PCB 31	
189.		PCB 52	
190.		PCB 101	



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Chemical Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
191.	Solid Waste	PCB 118	EPA 8082A/1668C-GC-ECD
192.		PCB 138	
193.		PCB 149	
194.		PCB 153	
195.		PCB 170	
196.		PCB 180	
197.		PCB194	
198.		PCB198	
199.	Solid Waste	Elemental analysis: Total Carbon	ASTM D5373-21-ASTM D5291-EN13137/Method B (direct procedure)- BS EN 15936: 2022/Elemental Analyzer
200.		Elemental analysis: Total Nitrogen	ASTM D5373-21-ASTM D5291-EN13137/Method B (direct procedure)- BS EN 15936: 2022/Elemental Analyzer
201.		Elemental analysis: Total Organic Carbon	ASTM D5373-21-ASTM D5291-EN13137/Method B (direct procedure)- BS EN 15936: 2022/Elemental Analyzer



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Biological Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Food and Agricultural Products		
1.	Tahini Paste	Salmonella	ISO 6579-1:2017/Amd.1:2020E



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Biological Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Pollution & Environment		
1.	Waste Water	Total Coliforms	ISO 9308-1:2014/Membrane filtration
2.	Waste Water	Escherichia coli	ISO 9308-1:2014/Membrane filtration
3.	Waste Water	Thermotolerant Coliforms	APHA Membrane Filtration 9222 B, D



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Biological Testing			
Sl. No.	Product(s)/Material of Test	Specific Tests Performed	Test Method
	Water		
1.	Water	Total Coliforms	ISO 9308-1:2014/Membrane filtration
2.	Water	Escherichia coli	ISO 9308-1:2014/Membrane filtration
3.	Water	Thermotolerant Coliforms	APHA Membrane Filtration 9222 B, D

