

CLL Laboratory Services

Specialized Services for Food & Beverages

Product Composition Analysis	Proximate Analysis, Fatty Acids Profile, Sugars Profile, Amino-Acid Profile, Organic Acids etc.
Food Additives	Colours, Preservatives, Emulsifiers, Stabilizers, etc. as per FCC, CODEX, JECFA or IS
Bio-Burden Studies	Plant Monitoring & Site-Validation Services
Shelf-Life Studies	Ambient & Accelerated
Pre-launch Consumer Acceptance	Consumer Panels
Sensory Evaluation	Expert Panels
Health / Dietary Claims Verification	for Human & Pet Foods
Nutritional Labelling	as per NLEA, EEC Directives, CODEX and PFA
Organic Food Analysis	To meet FAO, ANZFSANZ specifications
Vegetarian Labelling	Freedom from Animal Fat, as per PFA

CLL also provides analytical services for Agrochemicals, Pharmaceuticals, Dietary Supplements, Natural Products, etc. Consultancy in the field of Environment Mgt. Services, Calibration Services (NIST/ NPL traceable), and HACCP certification also available.

Water Analysis

Analysis Parameters for Drinking (Potable or Bottled Water) & Waste-water

SNo.	Test Parameter
	A. Organoleptic
1	Colour
2	Floatables
3	Odour - Qualitative
4	Odour – Threshold Test
5	pH value
6	Solids - Fixed & Volatile Solids
7	Solids - Settleable Solids
8	Solids - Total Dissolved Solids
9	Solids - Total , Fixed, and Volatile Solids (In Solids & Semisolids)
10	Solids - Total Solids
11	Solids - Total Suspended Solids
12	Taste - Flavor Profile Analysis
13	Taste Qualitative Rating Scale
14	Turbidity
	B. General Characteristics
15	Alkalinity
16	Ammonia (NH ₄)
17	Anionic Surface Active Agents
18	Bicarbonates
19	Biochemical Oxygen Demand (BOD)
20	Biochemical Oxygen Demand (BOD)
21	Bromide
22	Calcium
23	Calcium Carbonate Saturation Index (Scale Forming Index)
24	Carbon Dioxide
25	Carbonates
26	Chemical Oxygen Demand (COD)
27	Chloride
28	Chlorine
29	Chlorine Demand
30	Chlorine Dioxide Demand
31	Conductivity, as EC (Electrical Conductivity)
32	Dissolved Oxygen
33	Electrical Conductivity
34	Equivalent Mineral Acidity
35	Fluoride
36	Free CO ₂
37	Free Mineral Acidity
38	Hardness
39	Hydroxide
40	Iodate
41	Iodide
42	Iodine
43	Mineral Oil
44	Nitrate
45	Nitrite
46	Nitrogen
47	Nitrogen Ammonia

48	Nitrogen Nitrate
49	Nitrogen Nitrite
50	Oil and Grease
51	Oxidizable Substances
52	Oxygen
53	Ozone
54	Particulate Contamination & Invisible particles
55	Phenolic Compounds
56	Phenols
57	Phosphorus
58	Potassium permanganate
59	Residual Free Chlorine
60	Residue on Evaporation
61	Salinity
62	Silica
63	Sodium
64	Sulfate
65	Sulfide
66	Sulfite
67	Surfactants
68	Tannin and Lignin
69	Total Hardness (CaCO ₃)
70	Total Organic Carbon (TOC)
71	Total Silica
	C. Inorganic Analytes (Metals)
72	Aluminum
73	Antimony
74	Arsenic
75	Barium
76	Beryllium
77	Bismuth
78	Boron
79	Cadmium
80	Chromium, Total
81	Chromium, Hexavalent (Cr ⁶⁺)
82	Cobalt
83	Copper
84	Cyanide
85	Gold
86	Iron
87	Lead
88	Lithium
89	Magnesium
90	Manganese
91	Mercury
92	Molybdenum
93	Nickel
94	Selenium
95	Silver
96	Tin
97	Titanium
98	Uranium
99	Vanadium
100	Zinc

	D. Microbiological
101	Aerobic microbial plate count – 20 Deg C
102	Aerobic microbial plate count – 37 Deg C
103	Bacterial Endotoxin
104	Coliform bacteria
105	Cryptosporadia
106	E. coli
107	Faecal streptococci
108	Giardia
109	Legionella
110	Lipolytic & Proteolytic Organisms
111	Psuedomonas aeruginosa
112	Salmonella
113	Shigella
114	Staphylococcus aureus
115	Sterility (for Sterile Preparations)
116	Sulphite reducing anaerobes
117	Total Organic Carbon (TOC)
118	Vibrio cholera
119	Vibrio parahaemolyticus
120	Yeasts and Mould
	E. Pesticide Residues
121	Residue - Acephate
122	Residue - Aldicarb
123	Residue - Aldrin & Dieldrin
124	Residue - Atrazine
125	Residue - Benzene hexachloride
126	Residue - Captafol
127	Residue - Carbaryl
128	Residue - Carbofuran
129	Residue - Chlordane
130	Residue - 2,4-D
131	Residue - Cypermethrin (3 Isomers)
132	Residue - DDT (6 Isomers)
133	Residue - Deltamethrin
134	Residue - Diazinon
135	Residue - Dichlorvos
136	Residue - Dimethoate
137	Residue - Dithiocarbamates (Total of 6 dithiocarbamates)
138	Residue - Endosulfan (3 Isomers)
139	Residue - Ethion
140	Residue - Fenitrothion
141	Residue - Fenthion
142	Residue - Fenvalerate
143	Residue - Fosetyl aluminium
144	Residue - Lindane
145	Residue - Malathion & its oxygen analogue Malaxon
146	Residue - Metalaxyl
147	Residue - Methyl parathion & its oxygen analogue Methyl paraxon
148	Residue - Monocrotophos
149	Residue - Isoproturon
150	Residue - Phorate (3 isomers)
151	Residue - Parathion
152	Residue - Permethrin
153	Residue - Phosalone

154	Residue - Phosphamidon
155	Residue - Propoxur
156	Residue - Simazine
157	Residue -Chlorpyrifos
158	Residue - Glyphosate
	<i>CLL has over 200 pesticide residues CRMs which are constantly updated. Libraries of over 3000 compounds (NIST & WILEY) are also available.</i>
159	F. Volatile Organic Compounds (20 VOC analytes listed individually) - GC/MS with HS/Purge & Trap
160	G. Polychlorinated Biphenyls, PCBs (22 PCB analytes listed individually) - GC/MS
161	H. Polynuclear Aromatic Hydrocarbons, PAHs (16 PAH analytes listed individually) - GC/FID or HPLC

Nutritional Evaluation

Nutritional Evaluation Parameters for Food Products

SNo.	Test Parameter
2	Carbohydrates
3	Chloride
4	Cholesterol
5	Crude Fibre
6	Dietary Fibre (Total: Insoluble + Soluble)
7	Fats, Total (Chemical Method)
8	Monounsaturated Fat (by GC / GC-MS)
9	Polyunsaturated Fats (by GC / GC-MS)
10	Saturated Fats (by GC / GC-MS)
11	Trans Fats (by GC / GC-MS)
12	Unsaturated Fats (by GC / GC-MS)
13	Fatty Acid Composition
14	Fatty Acids (as True Fatty Acids)
15	Protein
16	Macronutrients
	Micronutrients
17	Calcium
18	Potassium
19	Sodium
20	Stability
21	Sugars, Total
22	Sugars, By HPLC
	Vitamins
23	Calcium Pathothenate
24	d - Panthenol
25	Folic Acid
26	Niacinamide, Niacin
27	Nicotinic Acid
28	Vitamin A, Retinol (acetate, palmitate)
	By HPLC
	By UV-VIS
29	Vitamin B1, Thiamine (hcl, mononitrate)
30	Vitamin B2, Riboflavin (phosphate)
31	Vitamin B3, Niacin
32	Vitamin B6, Pyridoxine (hcl)
33	Vitamin B12, Cyanocobalamine
34	Vitamin C, Ascorbic acetate
35	Vitamin D3 - Cholecalciferol
36	Vitamin E (DL alpha tocopherol acetate) - by UV
37	Vitamin K, Menadione
38	Vitamin H, Biotin
39	Vitamin P, Rutine

Contaminants

Contaminant Analysis Parameters for Food Products

SNo.	Test Parameter
1	Acidophilic bacteria (37 °C and 55 °C)
2	Alicyclobacillus (ATB) in fruit juices
3	Bacillus cereus
4	Campylobacteria jejuni
5	Canned food - Tests for spoilage on incubation
6	Clostridium botulinum
7	Clostridium perfringens
8	Coliforms, total
9	E. coli
10	E. coli O157: H7
11	Enterobacteriaceae bacteria count
12	Faecal streptococci
13	Flat Sours
14	Legionella
15	Listeria spp.
16	Listeria moocytoenes
17	Psuedomonas aeruginosa
18	Salmonella
19	Shigella
20	Staphylococcus aureus
21	Sterility (Commercial Sterility)
22	Sulphite reducing anaerobes
23	Thermophilic bacteria
24	Total Bacterial Count
25	Total Fungal Count
26	Total Plate count
27	Vibrio cholera
28	Vibrio parahaemolyticus
29	Vibrio spp.
30	Yeasts and Mould
	B. Mycotoxins
31	Aflatoxins, Total
32	Aflatoxin M1
	C. Toxic Metals
33	Arsenic
34	Chromium
35	Lead
36	Mercury
37	Organomercury
38	Selenium

39	Tin
	D. Chemical Contaminants
40	Acrylamide
	<i>Agro-chemical Residues</i>
41	Organochlorines
42	Organo-nitrogen/phosphorous
43	Organo-sulphur
44	Organo-tins
45	Carbamates
46	Dithiocarbamates
47	Organo-acids
48	Disinfectant & their by-products
49	PCBs
50	PAHs
51	Residual Solvents
52	<i>Veterinary (/antibiotic) Residues</i> (As per CODEX, EU, USFDA, IS specifications)
	E. Packaging Compatibility Tests
53	Overall Migration, OML, as per IS, EU Directive
54	Specific Migration, SML as per EU Directive
55	Extractables
56	F. Synthetic Dyes (banned food colours)
57	G. Adulterants (specific to food-products)
58	H. Freedom from Animal Fat