Spectra Chem™
Atyaf Al-Kimiya

Licensed Environmental Laboratory by
Iraqi Ministry of Environment (MOEN)
Iraqi Chemists Syndicate (ICS)

ENVIRONMENTAL LABORATORY

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Field sampling and standard-method analysis of water, soil, waste, air, noise and workplace exposure for oil, gas, energy and industrial projects across Iraq.



WHAT WE TEST

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ABOUT OUR LABORATORY

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Atyaf Al-Kimiya | Spectra Chem™ operates a MOEN-licensed environmental laboratory in Iraq. Our field and laboratory teams work together from sampling plan to final report, delivering data for EIA/ESIA studies, baseline surveys, compliance monitoring and site investigations across Iraq.

WHO WE SERVE

- Oil & Gas Operators
- Refineries & Petrochemicals
- Power Plants
- Cement & Steel
- Infrastructure Projects
- Environmental Consultants

LICENCES & ACCREDITATION

MOEN LICENCE No. 987

Environmental Laboratory

Issued 22 Apr 2026 · valid to 22 Apr 2029
Verification code 646806818737575

Iraqi Chemists Syndicate

Certified chemical analysis laboratory (industrial & scientific) regisered with the Iraqi Chemists Syndicate (ICS)

QUALITY ASSURANCE & CONTROL

- Validated methods: SM, US EPA, ISO, ASTM ,NIOSH
- Calibrated instruments, traceable standards
- Certified reference materials (CRMs)
- Blanks, duplicates and matrix spikes per batch
- Proficiency testing program (PTP) and external QA
- Chain of custody and sample preservation

Analytical Techniques

Chromatography
GC-MS, GC-FID, GC-ECD, GC-NPD
HRGC-HRMS, Ion Chromatography

Spectrometry
ICP-OES, ICP-MS, AAS (flame & graphite furnace, Hydride), UV-Vis

Radiometry
Liquid scintillation counting (LSC), HPGe gamma spectrometry

Results reported against Iraqi limits Ministry of Environment (MOEN), Ministry of Health (MOH), Ministry of Water Resources (MOWR), Ministry of Oil (MOO), Central Organization for Standardization and Quality Control (COSQC) and international guidelines (WHO, IFC EHS, US EPA) or project-specific lender standards.

LABORATORY SERVICE MAP

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Our Laboratory Services Map





Water, Wastewater & Brine

pH, EC, TDS, BOD_5, COD, TOC, oil & grease, anions and nutrients (IC), 75 elements (ICP), VOCs, BTEX, PAHs, TPH, pesticides, dioxins & furans, coliforms, Legionella

Soil, Sludge & Waste

TPH (C6–C40), BTEX, PAHs, metals and Cr(VI), PCBs, dioxins & furans, TOC, pH, EC, texture, available nutrients, TCLP leaching (US EPA 1311)

Ambient Air & Stack Emissions

PM10, PM2.5, NO_2, SO_2, CO, O_3, H_2S, VOCs; stack O_2, CO, NOx, SO_2, HCl, HF, isokinetic dust, polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/F); CEMS QAL2 / AST

Noise

LAeq, LAmax, LAmin, L10 / L90, octave bands, sound power, PPV, noise contour modelling (ISO 9613-2)

Occupational Hygiene

Respirable dust, crystalline silica, asbestos, metals, acid mists, VOCs, formaldehyde, bioaerosols, thermal comfort, workstation noise

EVERY TEST FOLLOWS THE SAME CONTROLLED WORKFLOW

Field sampling › Preservation & transport › Analysis › QA/QC review › Reporting

TEST PACKAGES BY APPLICATION

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Typical parameter sets we recommend; every package is adjusted to the applicable permit, regulation or client specification.

Drinking & Bottled Water

Colour, turbidity, pH, TDS, hardness, major ions, nitrate, nitrite, fluoride, As, Pb, Cd, Hg, Cr, THMs, coliforms, E. coli

IQS 417 · WHO guidelines

Produced Water & Brine

TDS, salinity, density, chloride, Ba, Sr, Fe, oil-in-water, BTEX, PAHs, NORM, corrosion bacteria (SRB, APB)

Re-injection and disposal permits

Industrial Effluent & Self-Monitoring

pH, BOD_5, COD, TSS, oil & grease, phenols, sulfide, cyanide, ammonia, heavy metals, toxicity

Law No. 25 · IFC EHS

Sanitary Wastewater & WWTP

BOD_5, COD, TSS, nitrogen, phosphorus, MLSS, MLVSS, SVI, coliforms, helminth eggs, jar test

Treatment performance and reuse

RO, Boiler & Cooling Water

SDI, LSI, Ryznar and Puckorius indices, silica, hardness, alkalinity, iron, conductivity, hydrazine, MIC bacteria

Scaling and corrosion control

Swimming Pools & Bathing Water

Free and combined chlorine, cyanuric acid, pH, turbidity, E. coli, Pseudomonas aeruginosa, Legionella, Staphylococcus aureus

Public health compliance

Irrigation & Agriculture

EC, TDS, SAR, sodium %, boron, chloride, bicarbonate, nitrate, pH; soil available nutrients

FAO Irrigation & Drainage Paper 29

Aquaculture & Livestock Water

Dissolved oxygen, ammonia, nitrite, H_2S, alkalinity, hardness, pH, metals, coliforms

Stock health and productivity

Contaminated Land & Drilling Waste

TPH bands, BTEX, PAHs, metals, Cr(VI), PCBs, chloride and salinity, TCLP leachate

Site investigation and closure

Hazardous Waste & Export

TCLP (42 analytes), PCBs, total halogens, metals, hazardous characteristics for classification

US EPA 1311 · BS EN 12457 · Basel Convention

Stack & Ambient Compliance

Stack O_2, CO, NOx, SO_2, dust, HCl, HF, PCDD/F; ambient PM10, PM2.5, NO_2, SO_2, O_3, H_2S

Iraqi emission limits · IFC EHS

Water and effluent testing follows Iraqi Water Law No. 25 – System of Rivers and Other Water Resources Protection (discharges to rivers and receiving-water quality). Drinking water is assessed against Iraqi Standard No. 417 – Standard Specification for Drinking Water (physical, chemical and microbiological limits).

Not sure which package applies? Send us the permit, regulation or project scope and we will propose the parameter list.

LABORATORY SERVICE

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Drinking water · Groundwater · Rivers & lakes · Seawater · Pool water · RO & process water · Produced water & brine · Wastewater & effluents

Physical & General

Temperature, colour, pH, EC, resistivity, turbidity, TDS, TSS, TS, fixed and volatile solids, settleable solids, density, viscosity, salinity, ORP, DO

SM 2000 series · ISO 10523 · ISO 7027

Organic Load & Sum Parameters

BOD_5, COD, TOC, DOC, AOX, TOX, permanganate index, fat, oil & grease, phenols, MBAS and non-ionic surfactants

SM 5210 · SM 5220 · SM 5310 · ISO 9562

Anions & Nutrients

Cl, SO_4, F, Br, I, NO_3, NO_2, PO_4, chlorite, bromate, HCO_3/CO_3, ammonium-N, TKN, total N, total P

Ion chromatography · SM 4110 B · ISO 10304-1

Inorganic Non-Metals

Free and WAD cyanide, sulfide, sulfite, free sulfur, free chlorine, chloramines, hydrazine, silica, free CO_2, cyanuric acid

SM 4500 series · ASTM D1385

Metals & Elements

75 elements incl. heavy metals, rare earths and precious metals; Cr(VI), Fe^{2+}/Fe^{3+}, Hg

ICP-OES · ICP-MS · AAS · EPA 200.7 · SM 3120/3125

Volatile Organics

Priority VOCs, BTEX, MTBE, trihalomethanes, 9 haloacetic acids, volatile fatty acids

GC-MS · GC-FID · headspace

Semi-Volatile Organics

21 PAHs, alkylated NPD, SVOCs, dioxins & furans, 7 phthalates, 30 phenols, chlorinated hydrocarbons, nonylphenols and bisphenol A

EPA 8270 E · EPA 3510 C

Pesticides, Herbicides & PCBs

52 organophosphorus and 36 organochlorine pesticides, phenoxy herbicides, PCB congeners and Aroclors

EPA 8141 B · GC-ECD / GC-NPD

Petroleum Hydrocarbons

Aliphatic and aromatic TPH bands (C6–C35), nC10–nC40, hydrocarbon oil index, mineral oils

EPA 8015 B · GC-FID

Microbiology & Biology

22 tests incl. coliforms, E. coli, enterococci, Legionella, Pseudomonas, Salmonella, Vibrio, helminths; plankton and benthic species

SM 9000 series · ISO 9308-1 · ISO 11731

Jar Test, Scaling & Process Control

Jar test for water and wastewater treatability (coagulant and flocculant dosing); LSI, Ryznar and Puckorius indices, SDI (5/10/15 min), MLSS/MLVSS, SVI

ASTM D4189 · ASTM D2035

Water Sampling

Lakes, rivers, sea, wastewater and groundwater sampling; microbiological sampling

ISO 5667 series · ISO 19458

Compared with Iraqi drinking-water, effluent-discharge and river-protection limits, WHO guidelines and IFC EHS effluent guidelines.

LABORATORY SERVICE

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Contamination screening, site investigation and waste classification for oilfield, industrial and brownfield sites.

Soil & contaminated land | Bottom sediment | Sewage & treatment sludge | Drilling cuttings & mud | Oily sludge & tank bottoms | Waste & flare pits | Waste oil | Biota

Sample Preparation & Digestion

Drying, crushing, splitting, pulverising; aqua regia, microwave, HF multi-acid, lithium borate and peroxide fusion, saturated paste

Physical & General

Moisture, dry matter, bulk and particle density, texture, structure, pH, EC, total salts, loss on ignition (550 °C), ash

Organic Carbon & Sum Aggregate Parameters

TOC, DOC, organic matter, TOX, oil and grease, hydrocarbons, phenol index, linear alkyl sulfonates

Inorganic Parameters

Cr(III) and Cr(VI), cyanide, thiocyanate, anions, total nitrogen, phosphorus, silica

Metals & Elements

75 elements by ICP-OES / ICP-MS and AAS after acid or microwave digestion

Organic Contaminants

TPH bands, BTEX, VOCs, SVOCs, PAHs, NPD, PCBs, dioxins & furans, OC/OP pesticides, herbicides, phenols, chlorinated hydrocarbons

TCLP Leaching

42 regulated analytes: 8 metals, VOCs, SVOCs, pesticides, herbicides and TPH-TCLP

US EPA 1311

Waste Oil & Biota

PCBs, polychlorinated terphenyls, phthalate esters, total halogen and chloride in waste oil; organics and metals in biota

Agricultural Soil & Fertility

Available phosphorus and potassium, DTPA-extractable Fe, Mn, Zn and Cu, calcium carbonate equivalent, organic carbon, soluble cations and anions, SAR

TYPICAL APPLICATIONS

Drilling Waste

Cuttings and mud classification before disposal or treatment

Pits & Spills

Waste-pit closure and spill impact assessment

Remediation

Baseline, progress and close-out verification

Radioactivity / NORM and dioxin testing of soil, sludge, ash and waste: see Specialist Analyses.

LABORATORY SERVICE

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Ambient Air – Gases

NO_2, SO_2, O_3, CO, H_2S, NH_3, HF, HCl, mercaptans

Ambient Air – Particulates

PM10, PM2.5, TSP and deposited dust; 19 metals in PM10 and deposited dust

Ambient Air – Organics

150+ VOC vapours, BTEX, PCDD/PCDF

EPA TO-9A (dioxins)

Stack – Combustion Gases

O_2, CO, CO_2, $NO/NO_2/NOx$, SO_2, SO_3, H_2S, total gaseous organic carbon, moisture, velocity and flow

EN 15058 · EN 14792 · EN 14791 · EN 12619 · EN 14789

Stack – Acid Gases & Dust

HCl, HF, HBr, Cl_2, HCN, NH_3, H_2SO_4 mist, total fluoride; particulate matter 5–1000 mg/m³, smoke density

EN 1911 · EN 13284-1 · ISO 9096 · EPA 5 / 26A

Stack – Trace Organics & Odour

Gas- and particle-phase PAHs, PCBs, PCDD/F and dl-PCBs, formaldehyde, odour concentration

EN 1948-1 to 4 · ISO 11338 · EN 13725

CEMS Quality Assurance

QAL2 and annual surveillance tests for CO, NOx, SOx, O_2, HCl, HF, TOC, dust and flow

EN 14181

Mobile Sources

CO, CO_2 and hydrocarbon sampling from vehicles and mobile equipment

HOW WE MEASURE

Direct-reading analysers

NDIR, paramagnetic, chemiluminescence

Isokinetic sampling

Particulates, metals, PCDD/F

Sorbent & passive

Tubes and diffusion samplers

Dispersion modelling

Concentration contours at receptors

LABORATORY SERVICE

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Measurement

Environmental sound pressure levels (LAeq, LAmax, LAmin, L10, L90), sound power of machinery and multisource industrial plant

ISO 1996-1/2 · ISO 3744 / 3746 · ISO 8297

Modelling & Mapping

Outdoor propagation modelling, noise contour maps and receptor assessment

ISO 9613-2

LABORATORY SERVICE

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Personal and area sampling to assess worker exposure against occupational exposure limits, using recognised NIOSH, OSHA and ISO methods.

Workplace Dusts
Total and respirable dust, crystalline silica, carbon black, alkaline dusts, rubber process dust and fume
NIOSH 0600 series · NIOSH 7601

Asbestos
Asbestos identification in bulk and solid materials by polarised light microscopy
NIOSH 9002

Metals in Workplace Air
40 elements incl. Pb, Cd, Cr, Mn, Ni, As, Be, Co and Zn; hexavalent chromium
Filter sampling, ICP-AES · NIOSH 7300 / 7600

Acids & Inorganic Gases
HF, HCl, HBr, HNO_3, H_2SO_4, H_3PO_4, particulate fluoride, HCN, CO, NOx, O_2
Ion chromatography · NIOSH 7903 / 6604 · OSHA ID-196

Organic Vapours
VOCs, formaldehyde and PAHs by sorbent-tube sampling
GC-FID · GC-MS · NIOSH 3500

Bioaerosols & Indoor Air
Airborne bacteria and fungi in offices, camps, control rooms and clinics
NIOSH 0800

Thermal Comfort
PMV and PPD indices for moderate thermal environments
ISO 7730

Workstation Noise
Emission sound pressure levels at work stations and specified positions
ISO 11201 · ISO 11204

SPECIALIST ANALYSES

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Dedicated workflows for persistent organic pollutants, naturally occurring radioactivity, oilfield corrosion, asbestos and PFAS, together with benthic ecological studies.

SPECIALIST 01

Dioxins & Furans (PCDD/PCDF)

- **Compounds:** 17 toxic 2,3,7,8-substituted PCDD/PCDF congeners, dioxin-like PCBs and PCB congeners
- **Workflow:** Isokinetic, ambient or matrix sampling → isotope-dilution extraction and clean-up → HRGC-HRMS → WHO-TEQ / I-TEQ report
- **Matrices:** Stack gas, ambient air, water, soil, sediment, sludge, waste oil and biota
- **Methods:** EPA 1613 B (water, solids) · EN 1948-1 to 4 (stack) · EPA TO-9A (ambient air)

SPECIALIST 02

Benthic Studies

- **Scope:** Benthic macroinvertebrates and bottom-dwelling organisms in rivers, lakes, marshes and coastal sediments
- **Parameters:** Taxonomic composition, abundance and density, biomass, diversity indices (Shannon–Wiener, Simpson), biotic indices and EPT taxa
- **Methods:** Grab, corer and kick-net sampling; sieving, sorting and microscopic identification (ISO 10870, ISO 16665)
- **Use:** EIA/ESIA baselines and monitoring of discharges, dredging and river crossings

SPECIALIST 03

Radioactivity & NORM

- **Parameters:** Gross alpha, gross beta; K-40, Ra-226, Th-232, I-131, Rn-222; total uranium
- **Methods:** Liquid scintillation counting (ISO 11704); HPGe gamma spectrometry (ISO 10703)
- **Matrices:** Drinking and produced water, brine, soil, sludge, scale, sediment, waste
- **Use:** Waste classification and worker exposure screening

SPECIALIST 04

Corrosion Induced Bacteria (MIC)

- **Bacteria:** SRB, APB, IRB, IOB, GHB, NRB
- **Method:** Serial-dilution culture, NACE TM0194
- **Matrices:** Produced, injection and process water; seawater and brine
- **Use:** Corrosion risk and biocide performance monitoring

SPECIALIST 05

Asbestos

- **Scope:** Identification of asbestos types in bulk building materials, insulation, soil and waste
- **Method:** Polarised light microscopy (NIOSH 9002)
- **Use:** Demolition surveys, waste classification and worker protection

SPECIALIST 06

PFAS

- **Parameters:** PFOS, PFOA, PFHxS and extended PFAS lists
- **Methods:** LC-MS/MS per US EPA 537.1, 533 and 1633
- **Matrices:** Drinking, ground and waste water; soil and sediment; firefighting foam

HOW WE WORK

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Field | Laboratory | Quality gate | Reporting

1 · Request & Scope
Parameters, limits and site details

2 · Sampling Plan
Locations, frequency and containers

3 · Field Sampling
Trained teams and field measurements

4 · Preserve & Ship
Cold chain and chain of custody

5 · Lab Receipt
Sample check, coding and registration

6 · Analysis
Validated methods, calibrated instruments

7 · QA/QC Review
Blanks, duplicates, spikes and CRMs

QC criteria met?

Yes

8 · Report
Results vs Iraqi and international limits

No: re-analyse

COVERAGE
Field sampling and shipping throughout Iraq

TURNAROUND
[Standard: X working days] [Urgent service available]

INTEGRATED
Lab data feeds directly into our EIA, ESIA and monitoring studies







BEFORE YOU REQUEST A QUOTE

Parameters or Standard
Your parameter list or the regulation / permit limits to comply with

Sample Matrix & Quantity
Water, soil, waste, air, noise or workplace, and number of samples

Site & Schedule
Location, access requirements and sampling dates

Turnaround & Format
Required delivery time and reporting format


REPUBLIC OF IRAQ
MINISTRY OF ENVIRONMENT
LEGAL DIRECTORATE

جمهورية العراق
وزارة البيئة
الدائرة القانونية
شعبة المكاتب الاستشارية


REPUBLIC OF IRAQ
Ministry of trade
Registrar of Companies

جمهورية العراق
وزارة التجارة
دائرة تسجيل الشركات

شهادة تأسيس شركة

اطياف الكيمياء للتجارة العامة والخدمات البيئية والمختبرية محدودة المسؤولية شركة خاصة

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رشاد خلف هاشم
مسجل الشركات
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Environmental Laboratory

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Republic Of Iraq
IRAQI CHEMISTS SYNDICATE
Head Quarter

نقابة الكيميائيين العراقيين

REQUEST A QUOTATION

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We will propose the test schedule, sampling plan and applicable limits for your site.

+964 780 899 44 00
+964 771 899 44 00

info@spectchem.com

www.spectchem.com

Baghdad / Erbil, Iraq