QIASM

Quality Innovative Analytical Solutions

Profile


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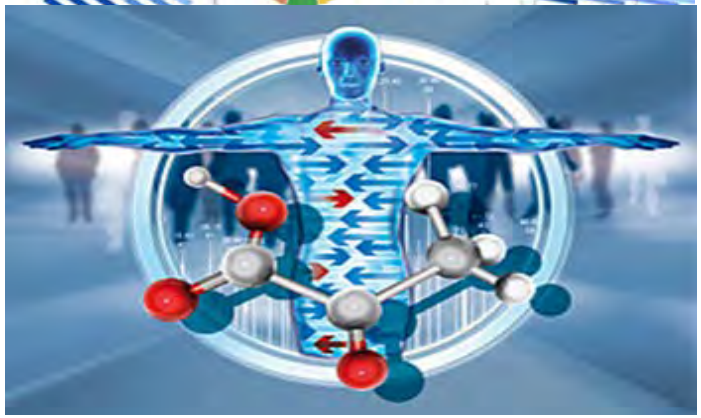
Who We Are?

Supported by KAUST University, QIAS is a startup company co-founded by a team of experts with a combined experience of over 80 years, specializing in various aspects of analytical chemistry. Dedicated to delivering specialized solutions directly at client laboratory site, we partner with industrial and academic organizations to tackle complex analytical challenges with precision and innovation.

Our Misson

At QIAS, we are a game changer at the crossroads between quality and innovation in analytical chemistry. We provide reliable, high-quality services while driving continuous innovation to meet our clients' evolving needs. By leveraging cutting-edge technology and expert methodologies, we deliver precise, actionable data that empowers success.



QIAS – Area of Support

Technologies

Recommend the most suitable analytical instruments and tools tailored to the customer's specific needs and objectives, ensuring optimal results and efficiency

Method Development

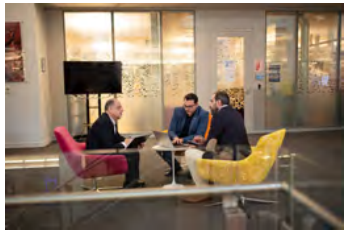
Onsite method development and validation, tailored study design, and expert troubleshooting for chemical manufacturing and analysis challenges.

Scientific Support

Partner with R&D teams to optimize experimental design, enhance data interpretation, and deliver actionable insights that drive business success.

Education

Offer flexible onsite training, utilizing the customer's own instruments and tools for a personalized, hands-on learning experience.



Targeted Sectors

Environmental

Water, air, and soil

Pharmaceuticals

Potency determination and impuritty identification

Polymer

Residual monomers and molecular weight determination

GAS

Natural and refinery gases

Metabolomics

Targeted and untargeted metabolites in biological samples

Material and Surface

Porosity, surface area, sorption, imaging and characterization

Our Services

- Analytical Chemistry Consulting
- Troubleshooting and Analytical improvement
- Training and Education
- Method Development
- Research and Collaboration
- Routine and Non-Routine Sample Analysis

Why Choose QIAS?

- Trusted Expertise in Analytical Chemistry
- Access to Advanced Analytical Techniques
- Customized Services and Solutions
- Deliver Onsite Services
- Commitment to Quality and Collaboration

By integrating education, innovation, and client-focused service, QIAS stands as a trusted partner in advancing analytical excellence

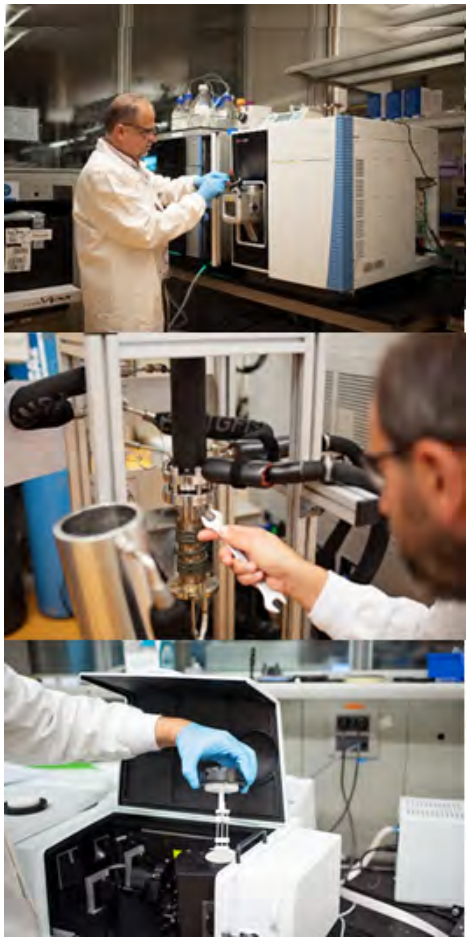
Our Core Competencies

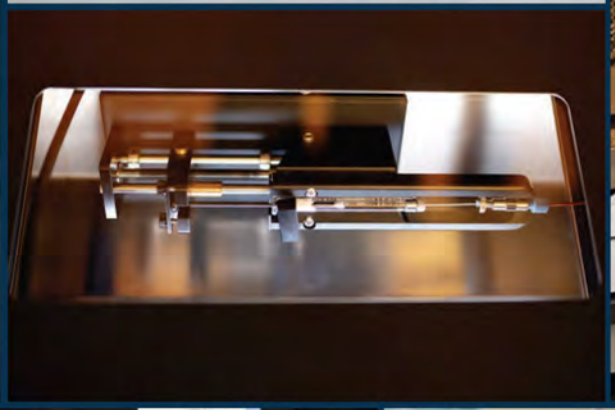
Small Molecule Analysis

Macromolecule Analysis

Surface Analysis

Molecular and Elemental Analysis



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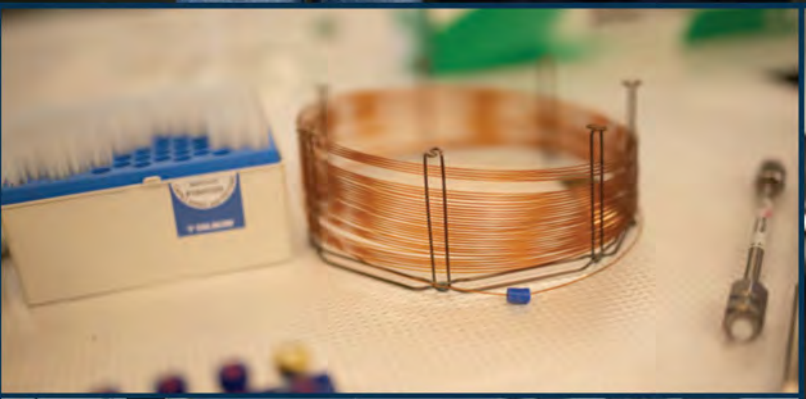


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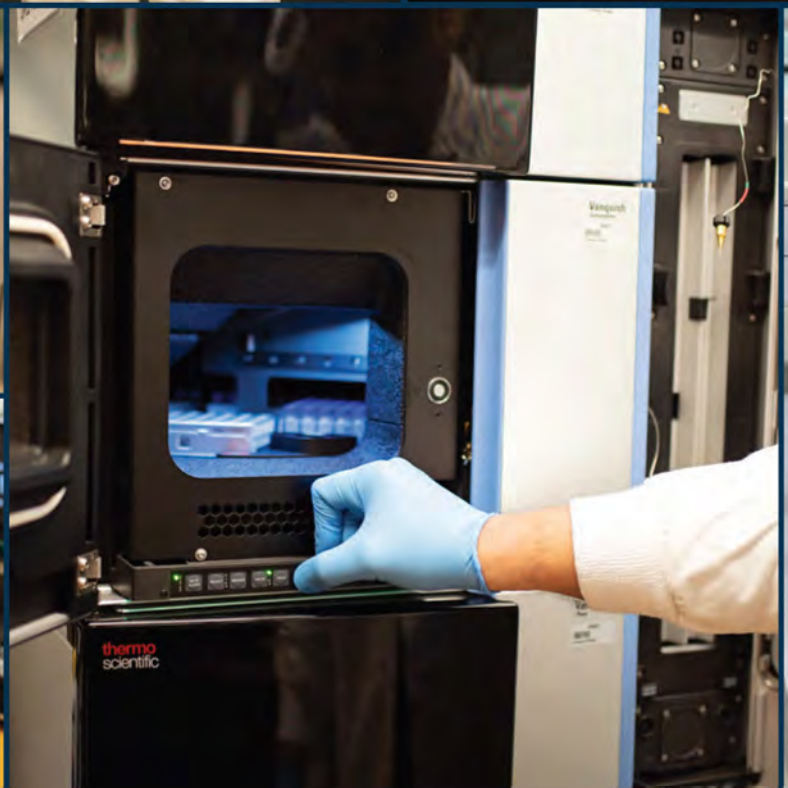
thermo
scientific

Core Competencies:
Small and Macro Molecules Analysis

- At QIAS, we specialize in the high-precision characterization of small molecules using advanced analytical techniques such as ultra-performance **Liquid Chromatography (LC)** and **Gas Chromatography (GC)** coupled with **Mass Spectrometry (MS)**. These methods enable the accurate identification, quantification, and profiling of diverse compounds, including active pharmaceutical ingredients and their impurities, agrochemicals like pesticides and herbicides, volatile and semi-volatile organic compounds, metabolites, environmental pollutants, and additives in food and beverage products.
- In addition, we offer cutting-edge solutions for the comprehensive characterization of macromolecules, including **polymers**. We provide a detailed molecular weight distribution analysis using the most advanced **Gel Permeation Chromatography (GPC)** and MS systems. These capabilities are essential for understanding polymer synthesis, optimizing formulations, evaluating material performance, and ensuring product quality.

Accessible Capabilities: GC, GC/MS, LC and LCMS

Category	Techniques	Capability /Features		Applications
Gas Chromatography	- GCMSD - GCQqQ MS - GC/TOF - GC-Orbitrap	GC Inlets	-LVI (Large Volume) -MMI (Multimode) -PTV (Programable Temperature Vaporizer) -S/SL (Split/Splitless) -HS (HeadSpace Analysis)	- PAH in Environmental - TPH in water and Soils - BTEX in water and Solids - Pesticides in Environmental - Environmental Emerging Contaminants - VOCs in Environmental samples - Residual Monomers in -Polymeric Materials -Gas Analyzers (NGA and RGA)
		Sample Introduction	-DHS (Dynamic Headspace) -TD (Thermal Desorption) -P&T (Purge and Trap) -SPME (Solid Phase Microextraction) -SBSE (Stir Bar Sorptive Extraction)	
		Detectors	FID, TCD, DFPD, FPD, XSD, SCD, NCD, NPD, HePDD	
Liquid Chromatography	-LC-QMS -LC/TOF -LC-Orbitrap - GPC	LC Inlets	-ESI (Electrospray Ionization) -APCI -APPI -Maldi	-PAH in Environmental -Residual Monomers in Polymeric product -Pharmaceuticals -Pesticides in Environmental samples -Environmental Emerging- Contaminants -Ion Chromatography including EPA methods - Polymers characterization
		Detectors	UV/VIS (DAD, PDA), Fluorescence, RID, ELSD, and MS	

* Located at KAUST, QIAS benefits from access to a wide range of sophisticated, state-of-the-art instruments, which are owned and maintained by KAUST.

Core Competencies:
Elemental and Molecular Analysis

At QIAS, we specialize in elemental and molecular spectroscopy, providing qualitative and quantitative insights into materials, and environmental samples. Our expertise includes advanced techniques like **ICP-MS, ICP-OES, XRF**, and **IC** for precise analysis of trace elements, metals, nutrients, and essential ions. For molecular spectroscopy, we utilize **FTIR, Raman, UV-Vis**, and **fluorescence spectroscopy** to investigate chemical structures, functional groups, and optical properties. These capabilities support environmental monitoring, material development, and quality control, driving innovation across industries

Accessible Capabilities *:
Molecular and elemental spectroscopy

Category	Techniques	Key Features/Capabilities	Applications
Molecular Spectroscopy	FTIR (NIR-Mid-Far)	- Transmittance, DRIFTS, ATR, Specular reflectance, Reflection-Absorption Infrared Spectroscopy (RAIRS) - In-situ analysis, Electrochemistry-IR - Temperature-dependent, Cryo - MicroIR	- Functional group identification - Surface analysis - Catalyst, thin films, process monitoring, microplastics
	UV-Vis-NIR	-Transmittance, diffuse/specular reflectance, scattering. -Temperature-dependent studies -SpectroElectrochemistry	- Optical properties - Electronic band gap determination - Quantitative analysis
	Raman	- Raman imaging, Spectroscopy - PL, SERS, Resonance Raman - Temperature-dependent Raman/PL	- Structural analysis - Chemical mapping - Stress/strain studies
	Fluorescence	- Spectroscopy - Epifluorescence	- Molecular interactions - Biomolecule and material imaging
Elemental Analysis	ICP-OES ICP-MS	-Trace elemental analysis	-Environmental monitoring - Industrial process control -Trace element detection -Complex matrix analysis
	XRF	Moderate elemental analysis (ppm level) Non-destructive	- Bulk elemental composition - Geological samples
	Organic Elemental Analyzer	- C, N, H, S, O content determination	- Combustion products - Organic material composition

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Core Competencies:
Surface Characterization by Gas Sorption

Surface area, surface chemistry, and catalytic properties are critical to material performance in catalysis, adsorption, and energy applications. At QIAS, we utilize **physisorption, chemisorption,** and **temperature-programmed techniques** to study surface area, porosity, reactivity, and surface-active site dynamics. Our evaluations include adsorption capacity, with a focus on gas capture and separation. Combined with in-situ spectroscopy, we deliver valuable insights into material properties, driving innovation across industrial and environmental sectors.

Accessible Capabilities *:
Surface Characterization by Gas Sorption

Category	Techniques	Key Features/Capabilities	Applications
Textural Properties	Gas Physisorption (Volumetric)	-Adsorption/Desorption Isotherms -Surface Area Analysis (BET, Langmuir) -Porosity and Pore Size Distribution -High Throughput Analysis -Ultra-micropores Analysis	Textural properties of porous and non-porous material (Specific surface area, pore volume, PSD, pore shape)
Sorption Properties	Gas Capture (Volumetric, Gravimetric)	-Single and Mixed Gas Sorption Analysis -Vapor Sorption -High-Pressure Gas Sorption -Isosteric Heat of Adsorption -Rate of adsorption -Breakthrough Curves for Gas Mixtures	-Gas and vapor storage capacity, -Material stability, -Adsorption selectivity, -Surface energy distribution, -Adsorption kinetics.
Catalytic Properties	Chemisorption (Volumetric)	-Dynamic Pulsed Chemisorption -Static Chemisorption	-Metal dispersion, surface area, size, -Surface acidity/basisity, oxydo-reductive
	Temperature-Programmed Methods	-Desorption (TPD) -Reduction (TPR) -Oxidation (TPO) -Surface Reaction (TPSR) -Reaction (TPRx)	-Metal dispersion, surface area, size, -Surface acidity/basisity, oxydo-reductive properties, -Binding energies, -Catalyst deactivation -Catalytical performance, -Reaction mechanism

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Access to World's Most Advanced Analytical Capabilities

At QIAS, we have the privilege to access the world's most advanced analytical and characterization capabilities through our presence in KAUST University. This includes cutting-edge techniques in **electron microscopy, surface and elemental analysis, structural and phase analysis, morphological characterization, chromatography, and mass spectrometry**. Utilizing the most advanced instruments available, we connect with top scientists in the field to deliver unparalleled insights and solutions, ensuring the highest level of expertise for even the most complex analytical challenges.

Access to World's Most Advanced Analytical Capabilities*

Category	Techniques	Key Features/Capabilities
Surface Analysis	XPS (X-ray Photoelectron Spectroscopy)	Surface elemental and chemical state analysis and mapping
	UPS (Ultra-violet Photoelectron Spectroscopy)	Analysis of valence band structure and work function
	SIMS (Secondary Ion Mass Spectrometry)	Surface molecular analysis down to ppb level, Depth profiling
Structural and Phase Analysis	XRD (X-ray Crystallography) SAXS, WAXS, GISAXS, GIWAXS	Powder sample phase identification Single crystal structure determination Small- and wide-angle scattering In-situ measurements for dynamic studies
Electron Microscopy	TEM (Transmission Electron Microscopy) SEM (Scanning Electron Microscopy)	High-resolution imaging Analytical capabilities (e.g., EDS, WBS, EBSD, EELS)
Scanning Probe Microscopy (SPM)	AFM (Atomic Force), STM (Scanning Tunneling), MFM (Magnetic Force), KPFM (Kelvin Probe Force), PFM (Piezoresponse Force)	High-resolution imaging Mechanical, electrical, magnetic, and thermal property measurement
Thermal Analysis	TGA-IR/MS, DSC, STA	Thermal stability, decomposition, and phase transitions
Magnetic Resonance	NMR (Solid and liquid)	Molecular structure and dynamics elucidation Multidimensional/multinuclear, Probes: CP-MAS, Cryo, DNP
Mass Spectrometry	FTICR-MS and HR 2D GC	High-resolution petroleomics and metabolomics analyses
Interfacial Characterization	Drop Shape Analyzer	Surface Wettability Contact angle, surface tension, surface free energy
	DLS, ELS, Electrokinetic Streaming potential	Particle size and zetapotential, Surface Charge

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Contact Us

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