



Tender Notice

Request for Proposal – Breakthrough Analyzer (BTA) with Mass Spectrometer

(RFP-IITD AD-PD 26/046)

The Indian Institute of Technology Delhi – Abu Dhabi (IITD-AD) intends to procure a high-performance research-grade **BreakThrough Analyzer with Quadrupole Mass Spectrometer (BTA-MS)** for its research facilities to support advanced dynamic gas adsorption studies, breakthrough curve analysis, mixed-gas adsorption, adsorption/desorption measurements, selectivity evaluation, and real-time online multi-gas detection. The system shall serve as a core analytical platform supporting carbon capture and utilization, gas separation, catalysis, porous materials research, membrane science, hydrogen-related studies, environmental gas monitoring, and interdisciplinary research programs.

Brief Project Scope:

Project Overview	IITD–AD seeks to procure a high-performance research-grade BreakThrough Analyzer with Quadrupole Mass Spectrometer (BTA-MS) for its research facilities to support advanced dynamic gas adsorption studies, breakthrough curve analysis, mixed-gas adsorption, adsorption/desorption measurements, selectivity evaluation, and real-time online multi-gas detection. The system shall serve as a core analytical platform supporting carbon capture and utilization, gas separation, catalysis, porous materials research, membrane science, hydrogen-related studies, environmental gas monitoring, and interdisciplinary research programs. The proposed system shall provide precise gas and vapor flow control, controlled temperature and pressure operation, low dead volume architecture, real-time gas analysis by quadrupole mass spectrometry, and integrated software for synchronized data acquisition, analysis, and reporting. The procurement aims to establish a versatile dynamic adsorption and online gas analysis platform at IITD–AD, suitable for advanced academic research, teaching, carbon capture studies, gas separation, catalysis, porous materials research, membrane evaluation, industrial collaboration, consultancy, and high-impact analytical investigations, in alignment with the UN and UAE Sustainable Development Goals.
Objectives	• Procure a research-grade Breakthrough Analyzer and Online Mass Spectrometry (BTA-MS) system for dynamic adsorption studies, breakthrough analysis, mixed-gas testing, and real-time gas monitoring. • Support teaching, training, and advanced research in carbon capture, gas separation, catalysis, porous and membrane materials, hydrogen technologies, and sustainable energy systems. • Provide hands-on experimental training for undergraduate, postgraduate, PhD, and postdoctoral researchers in adsorption measurements, gas analysis, data interpretation, and laboratory best practices.



	• Enable high-quality research on CO₂ capture and utilization, adsorbent and catalyst evaluation, membrane performance, selectivity, regeneration, and gas–vapor separation processes. • Establish a flexible and expandable analytical platform capable of supporting future research needs and emerging technologies. • Strengthen IITD–AD’s research infrastructure to foster high-impact publications, industry collaboration, consultancy, sponsored projects, and interdisciplinary innovation. • Contribute to the development of sustainable energy technologies and support the achievement of the UN and UAE Sustainable Development Goals (SDGs).
Scope	The procurement shall include the supply, delivery, installation, commissioning, calibration, integration, training, warranty support, and after-sales maintenance of a complete BTA-MS system. The scope shall include, but not be limited to: • Breakthrough Analyzer system for dynamic adsorption and gas/vapor breakthrough experiments • Quadrupole mass spectrometer with heated capillary interface for real time multi-gas detection and synchronized data acquisition • Gas lines, mass flow controllers (minimum 4, accuracy $\leq 1\%$ of full scale), carrier/sample gas handling, blending and pressure-control valves, and low dead-volume switching valves for rapid stream changes • Sample column/reactor assembly, hot box, high-temperature furnace ($\geq 300^\circ\text{C}$), and pressure/temperature control modules • System-control and data-analysis software with synchronized BTA-MS acquisition, breakthrough analysis, MS monitoring, reporting, and data export to CSV and open formats • Ethernet, analogue, and digital interfaces for system communication and integration • Gas regulators, tubing, connectors, calibration gases or standards, columns/reactors, sample holders, and starter consumables for initial operation • Computer workstation with licensed software and required data backup/export options • Installation, commissioning, integration testing, performance demonstration, Factory Acceptance Test (FAT), Site Acceptance Test (SAT), user training, application support, and technical documentation • Minimum three years comprehensive warranty from successful commissioning and final acceptance



Confidentiality & NDA Requirement

The detailed RFP documents contain confidential information. Interested suppliers must download, complete, sign, and submit the **Non-Disclosure Agreement (NDA)** as an **Expression of Interest (EOI)**.

EOI / NDA Submission Deadline:
20th July 2026, 3:00 PM (UAE Time)

Signed NDAs should be submitted to: **procurement@iitdabudhabi.ac.ae**

Upon receipt of a duly signed NDA, eligible suppliers will receive the complete RFP package.

Key Procurement Milestones

Milestone	Date
NDA Publication / RFP Launch	Wednesday 15th July 2026
EOI & Signed NDA Submission Deadline	Monday 20th July 2026, 3:00 PM
RFP Document Release	Tuesday 21st July 2026
Clarification Questions Deadline	Thursday 23 rd July 2026, 3:00 PM
Clarification Responses Issued	Monday 27th July 2026
Proposal Submission Deadline	Monday 3rd August 2026, 3:00 PM
Intent to Award	Mid- August 2026

For further information, please contact **procurement@iitdabudhabi.ac.ae**.