

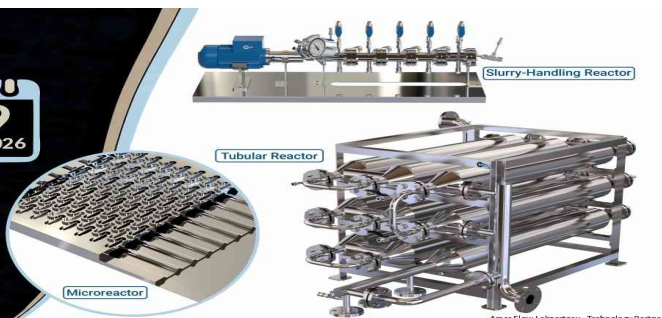
INDUSTRIAL FLOW CHEMISTRY BOOTCAMP

From Microreactor Fundamentals to
Advanced Chemistries & Smart Process Control



Hotel Avasa, Hyderabad, India

09
SEPT 2026



Flow Chemistry Excellence Workshop: Reactor Characterisation, Mixing Dynamics & Smart Process Optimisation

Industrial Flow Chemistry Bootcamp

09 Sep 2026 - 09 Sep 2026

CONFERENCE PROGRAMME

Wednesday, 9th September 2026

08:00	Registration
09:00	Foundations of Flow Chemistry & Microreactor Technology Core Concepts <ul style="list-style-type: none">• Why flow chemistry matters for API and fine chemicals• Microreactor architectures and design principles• Heat & mass transfer intensification• Safety, scalability, and regulatory relevance• Catalysis in flow (homogeneous, heterogeneous, biocatalysis)• Photochemistry in flow (LED reactors, photon flux control)• Electrochemistry in flow (electrode design, ion transport)• Mechanochemistry in continuous systems (emerging field)• Gas-phase and gas-liquid reactions in microreactors
09:45	Mixing in Microreactors: Principles, Characterisation & Measurement Core Concepts <ul style="list-style-type: none">• Laminar flow, diffusion-controlled mixing• Micromixing vs macromixing• Impact of mixing on selectivity, impurity formation, and yield• Using the Fourth Bourne Reaction as a quantitative probe• Determining micromixing time• Correlating mixing efficiency with reactor geometry and flow rate - Villermaux-Duschmann 'iodide-iodate' reaction• Why fast/exothermic reactions demand excellent mixing• Avoiding hotspots and runaway conditions• Inline temperature monitoring and heat removal strategies
10:45	Tea Break

11:00	<p>Residence Time, RTD & Reactor Sizing</p> <p>Core Concepts</p> <ul style="list-style-type: none"> • Calculating residence time • Plug flow vs dispersion • Reactor volume determination for desired throughput • What is Mean Residence Time Distribution (MRTD) • Why RTD matters for: <ul style="list-style-type: none"> • impurity control • scale-up • telescoped reactions • crystallisation and particle formation • Methods to measure RTD in lab reactors • How to translate RTD data from lab → pilot → plant scale
11:45	<p>Practical Operation of Microreactors</p> <p>Core Concepts</p> <ul style="list-style-type: none"> • Pump selection and flow control • Temperature and pressure management • Inline quenching, sampling, and analytics • Troubleshooting (clogging, pulsation, fouling) • Particle size distribution and settling • Slurry transport in microchannels • Avoiding clogging: velocity, channel design, ultrasound, oscillatory flow • Inline filtration and continuous solid handling • Case studies: crystallisation, heterogeneous catalysis, metal reductions
12:30	<p>Applications & Case Studies in Flow Synthesis</p> <p>Core Concepts</p> <ul style="list-style-type: none"> • Nitrations, oxidations, reductions • Photochemical transformations • Electrochemical oxidations/reductions • Gas-liquid reactions (carbonylations, hydrogenations) • Telescoped multi-step sequences • API intermediate examples • How flow improves safety, quality, and sustainability
13:15	<p>Q/A Session</p>
13:30	<p>Lunch</p>
14:30	<p>About the Equipment and Demonstration</p> <p>Demonstration 1+Hands-on: Residence Time Distribution (RTD) Study on MicroFLO™ and SlurryFLO™ platforms</p> <p>Demonstration 2: Mixing Efficiency & Micromixing Time using MicroFLO™ microreactor</p> <p>Demonstration 3: Handling Slurries in Continuous Flow using SlurryFLO™ reactor</p> <p>Demonstration 4: CogniFLO™ Closed-Loop Auto-Optimisation</p>
17:30	<p>Closing Remarks</p>