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COURSE BROCHURE

Catalytic Reforming and BTX Aromatics Production Training Course

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Registered in the United Kingdom and Saudi Arabia

Catalytic Reforming and BTX Aromatics Production Training Course

Catalytic Reforming and BTX Aromatics Production is a 1-week training course for refinery and petrochemical process engineers and senior operators, built around a reformer and aromatics operating envelope that each participant drafts for a real unit. Rising aromatics demand, tighter gasoline pool specifications and ageing catalyst inventories make reformer performance a direct driver of site margin. Jupiter Prime Training delivers this view of catalytic reforming and BTX aromatics production.

Why Catalytic Reforming and BTX Aromatics Production Matters Now

Three forces shape reformer operation today. Petrochemical integration pulls more benzene, toluene and xylenes from naphtha that once went straight to the gasoline pool. Hydrogen balances lean on the reformer as the main internal hydrogen source for hydrotreaters. Energy and emission pressures push heater duty and recycle compressor loads under scrutiny. A site that runs its reformer well holds octane, aromatics yield and catalyst life together; a site that runs it badly loses cycle length, burns coke into its margin and starves downstream units of hydrogen and feed.

Who Gains Most from Catalytic Reforming and BTX Aromatics Production

- Process engineers responsible for reformer yield, severity and run-length targets
- Senior console operators who set reactor inlet temperatures and recycle gas rates
- Aromatics plant engineers accountable for extraction solvent health and product purity
- Technical service staff who track catalyst activity, chloride balance and coke laydown
- Planning engineers who link reformate and aromatics output to the site production plan

A unit team sending its reformer engineer, aromatics engineer and shift lead together gains most.

Catalytic Reforming and BTX Aromatics Production Capabilities

Participants read a reformer and its aromatics train as one chain, from naphtha cut points to xylene specifications.

- Assess reactor delta-T profiles and weighted average inlet temperature — severity setting by the console team
- Calculate octane barrels and hydrogen yield trade-offs — feed allocation by the planning group
- Specify chloride, water and sulphur limits for platinum catalyst — technical service and catalyst vendors
- Compare semi-regenerative and continuous catalyst regeneration operation — revamp and cycle decisions
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Apply solvent extraction and fractionation balances — BTX purity commitments to downstream buyers
- Design an operating envelope with alarm limits — shift leads and the unit superintendent

Key Catalytic Reforming and BTX Aromatics Production Terms

- Research Octane Number RON — a rating of resistance to engine knock, the main quality target of reformate.
- Weighted Average Inlet Temperature WAIT — reactor inlet temperatures weighted by catalyst load, used to set severity.
- Continuous Catalyst Regeneration CCR — a design where catalyst circulates through a regenerator while the unit runs.
- Naphthene dehydrogenation — the fast endothermic reaction turning cyclic paraffins into aromatics and hydrogen.
- Coke laydown — carbon deposited on catalyst that lowers activity and sets regeneration frequency.
- Sulfolane extraction — a solvent process separating aromatics from non-aromatics in reformate.

Catalytic Reforming and BTX Aromatics Production Day by Day

Day 1: Naphtha Feed and Reforming Chemistry

- Naphtha PONA Analysis — Feed Selection for Aromatics Versus Octane
- Reforming Reaction Network — Which Reactions Drive Yield and Coke
- Naphtha Hydrotreater Performance — Protecting Platinum Catalyst From Poisons
- Initial and Final Boiling Points — Cut Point Choice for Benzene Precursors
- Thermodynamics of Pressure and Hydrogen Ratio — Severity Envelope Limits

Day 2: Reformer Configurations and Catalyst

- Semi-Regenerative Fixed-Bed Units — Cycle Length and Shutdown Planning
- CCR Moving-Bed Units — Regenerator Burn, Oxychlorination and Reduction
- Bimetallic Platinum-Rhenium and Platinum-Tin Catalysts — Selection by Unit Type
- Chloride and Water Balance — Acid Function and Catalyst Activity Control
- Coke Burn Profiles and Catalyst Surface Area — Replacement Timing

Day 3: Octane, Hydrogen and Unit Monitoring

- Reactor Delta-T Trending — Early Warning of Activity Loss
- WAIT and RON Correlation — Setting Severity Against Octane Demand
- Recycle Gas Purity and Compressor Loading — Hydrogen Supply to Hydrotreaters
- Fired Heater Duty and Tube Skin Limits — Energy and Reliability Trade-Offs
- Stabiliser and LPG Recovery — Reformate Vapour Pressure Control

Day 4: BTX Extraction and Fractionation

- Sulfolane Liquid-Liquid Extraction — Solvent Ratio and Aromatics Recovery
- Extractive Distillation Alternatives — Unit Choice by Feed Composition
- Benzene and Toluene Columns — Purity Specification and Reflux Policy
- Xylene Splitter and Para-Xylene Recovery — Isomer Separation Options
- Solvent Degradation and Regeneration — Corrosion and Product Colour Risk

Day 5: Practising the Reformer and Aromatics Operating Envelope

- Feed and Severity Case Study — Applying PONA and WAIT to Yield Targets
- Catalyst Troubleshooting Exercise — Applying Delta-T and Chloride Diagnosis
- Aromatics Purity Upset Drill — Applying Extraction and Column Balances
- Petrochemical and Fuels Refinery Comparison — Margin Priorities by Site Type
- Reformer and Aromatics Operating Envelope — Limits, Alarms and Owners

Applying Catalytic Reforming and BTX Aromatics Production After the Course

- Lead a delta-T and WAIT trend review of the last six months to flag catalyst activity drift.
- Run a chloride and water balance check with the laboratory and correct injection rates.

Catalytic Reforming and BTX Aromatics Production Questions FAQ

What is catalytic reforming and BTX aromatics production and why does it matter now?

It is the conversion of heavy naphtha into high-octane reformate, hydrogen and benzene, toluene and xylenes. It matters now because sites rely on the reformer for both gasoline octane and petrochemical feed, so small severity errors cost margin twice.

Which roles gain most from catalytic reforming and BTX aromatics production training?

Reformer process engineers, console operators and aromatics plant engineers gain most.

How does a catalytic reforming and BTX aromatics production course differ from a general refinery operations course?

It goes deep on one unit chain rather than surveying the whole refinery. You work with reformer catalyst chemistry, regeneration systems and aromatics extraction, instead of crude distillation, cracking or general production scheduling.

What do you bring back from catalytic reforming and BTX aromatics production training?

You bring back a drafted operating envelope for your reformer and aromatics units. It sets severity, chloride and purity limits with named owners.

Catalytic Reforming and BTX Aromatics Production: The Way Forward

The reformer and aromatics operating envelope first informs the severity target for the next run period. Console operators use its limits shift by shift, while process engineers use it to judge catalyst health and timing of regeneration. After the first full cycle, revisit the envelope against actual coke burn and purity results, and tighten the limits that proved too loose.