

BOTTOM-OF-THE-BARREL ECONOMICS. ELEVATED.

Digital ready - Residue Hydroprocessing Unit (LC-MAX®) with integrated AI-led intelligence

Developed by Lummus Digital

LC-MAX® Digital Suite: What It Enables

A Breakthrough in Residue Upgradation with strong digital foundation for future improvement



Key Capabilities

- Digital Suite with AI-led intelligence built in from startup
- Crude Blending Optimization
- Feed Operability Index (FOI)
- Capacity Utilization Monitoring
- Economic Performance Dashboard to track revenue, profitability KPIs
- Energy & Carbon Tracking
- EB Reactor Health Monitoring
- Catalyst Performance & Inventory Management
- Integrated Hydrogen Management



Strategic Outcomes

- **Maximize Margin per Barrel** through smarter conversion, yield, and product decisions
- **Enhance Reliability & Reduce Downtime** with predictive and preventive insights
- **Optimize Catalyst & Hydrogen Utilization** to lower operational costs
- **Improve Energy Efficiency & Carbon Visibility** to support sustainability goals

Plant Life Cycle Collaboration & Assistance

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Digital Support Across Every Phase

Build



Pre-Commissioning
Digital Solutions

Start-Up & Early Operations



Ongoing CLG expert support,
use hybrid prediction models
for responsive operation

Stabilize



Hybrid Optimization
Models

Scale-Up



Higher Value
Generation



Lummus Digital is at the forefront of transforming the oil and gas downstream sector, offering domain led digital solutions that tackle the complex challenges faced by refineries and petrochemical industries. As a joint venture between TCG Digital and Lummus Technology, we blend decades of process engineering expertise with advanced AI and data science to deliver tailored solutions for measurable outcome. Our Data & AI platform mcube™ underpins these transformations. We enable organizations unlock the full potential of their data, and by seamlessly integrating AI/ML capabilities into their business processes, we empower businesses to accelerate their digital transformation journey, enhancing agility and driving impactful results.

Our team, comprising over 500 process engineers and 100+ data scientists, we are committed to developing and implementing solutions that enable refineries and petrochemical units to achieve success in their AI-driven business transformation journey.

www.lummusdigital.com



mcube™ is TCG Digital's flagship Data, AI, and Analytics platform—engineered at the intersection of deep industry knowledge and digital innovation. Built on a domain-driven design, it seamlessly navigates the most complex and disparate data landscapes. With AI 2.0 at its core, mcube™ fuses advanced models with real-world context to solve high-impact business challenges. By integrating mcube.data, mcube.ai, and mcube.agents, it transforms enterprise data into intelligent ecosystems. mcube™ drives semantic discovery through ontologies, and empowers agentic applications for autonomous decision-making and continuous learning. From harmonizing data to deploying intelligent agents, mcube™ accelerates 'velocity to value'—delivering clarity, intelligence, and outcomes at scale.

www.tcgdigital.com/tcg-mcube

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Speak to our experts