

Aspen Unified PIMS™

Optimize Tradeoffs Between Margins, Throughput and Sustainability

Aspen Unified PIMS (Process Industry Modeling System) uses advanced mathematics to optimize production performance for downstream and petrochemicals companies. It is the most trusted production planning software solution in the industry, currently used by 70% of refineries and 50% of olefins plants around the world.

Named “Best Process/Plant Optimization Technology” by *Hydrocarbon Processing* in 2021, Aspen Unified PIMS uses Industrial AI, guiding users to better understand model results with Aspen Virtual Advisor (AVA) for Unified PIMS™. Aspen Unified PIMS is the cornerstone of the Aspen Unified™ solution, enabling users to achieve dramatic productivity increases while improving overall agility, sustainability and profitability.

Key Benefits

Increase Margins

The model is, at its core, a profit maximizer underpinned by AspenTech’s proprietary solver. Use case examples include selecting feedstocks and product slates, determining “break even” price for purchases and sales, optimizing blend recipes, understanding and mitigating business risk, and allocating capital expenditure.

Balance Sustainability and Profitability

By analyzing scenarios and limiting emissions, users can better understand and optimize the tradeoffs between margins, throughput and sustainability (i.e., identifying tiers of energy consumption by source, natural gas versus green hydrogen for heating, solar or wind versus co-generation).

Save Time and Money

Efficiencies abound with Aspen Unified PIMS—deployment using an automatic PIMS model converter, automated work processes and API data connections, and use of a server over local installs for upgrades. With graphical flowsheet, constraint view and Aspen Virtual Advisor (AVA) for Unified PIMS AI assistant, it is simpler, easier and faster than ever.

Key Capabilities

- Proprietary AspenTech solver enables finding the global optimum of complex nonlinear refinery and olefins optimization problem
- Simplified user interface helps new users learn the tool faster
- Flowsheet visualizes key data like constraints and stream connections
- Aspen Virtual Advisor (AVA) for Unified PIMS AI assistant guides users to understand model results (see Figure 1)
- Multi-user enterprise environment improves security and tracks changes of business-critical, economic decision-making data
- Common data and model library streamlines model updates and prevents costly errors
- Assay management for better property prediction, powered by molecular characterization
- Cloud deployment with fast, scalable processing enables analysis of more scenarios and thereby better results
- Web-based application improves stability and collaboration

Use Case: Easier and Faster Production Planning for Optimal Results

Challenge: Refiners and petrochemical producers face volatility in the global energy markets, expectations from shareholders for higher returns and increasing pressure to be sustainable. Meeting all these demands can be achieved with the development of optimal operating plans that balance production, profit and sustainability. Typical problems solved optimally by Aspen Unified PIMS: Feedstock and product selection, product blending recipes, CO₂ and GHG emissions reduction, biofeedstock integration, process plant configurations and capital improvements.

Solution: Aspen Unified PIMS can help users manage these challenges, enabling better business decision-making.

Result: Improved margins, reduced emissions, and increased efficiency and agility.

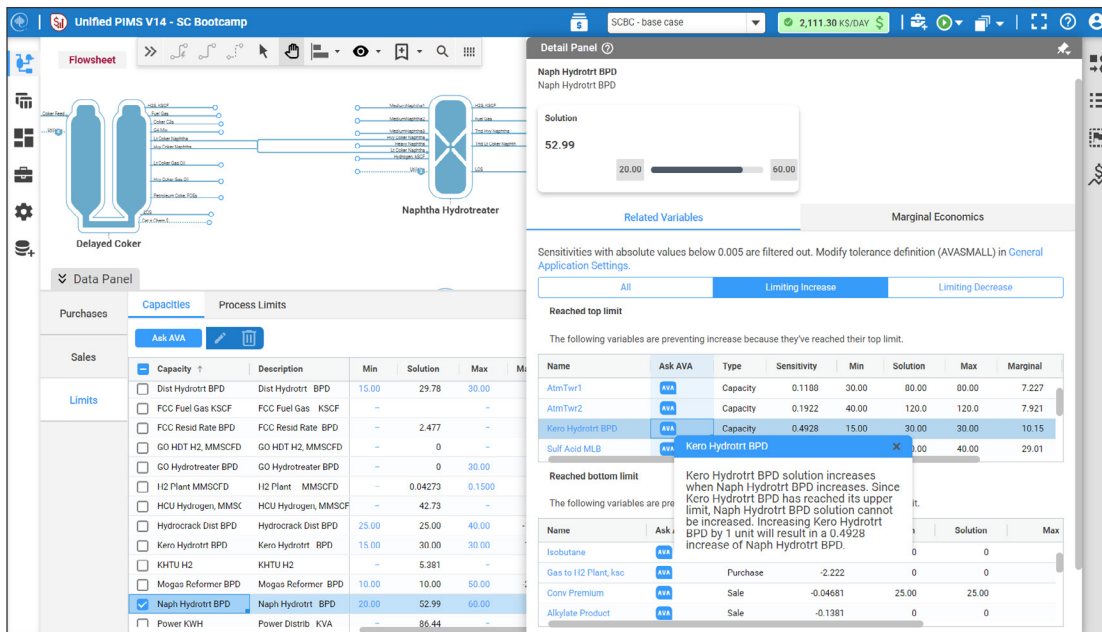


Figure 1. Aspen Virtual Advisor (AVA) for Unified PIMS provides guidance for users to better understand model results. Here, it explains why the naphtha hydro-treater is not at its maximum rate.

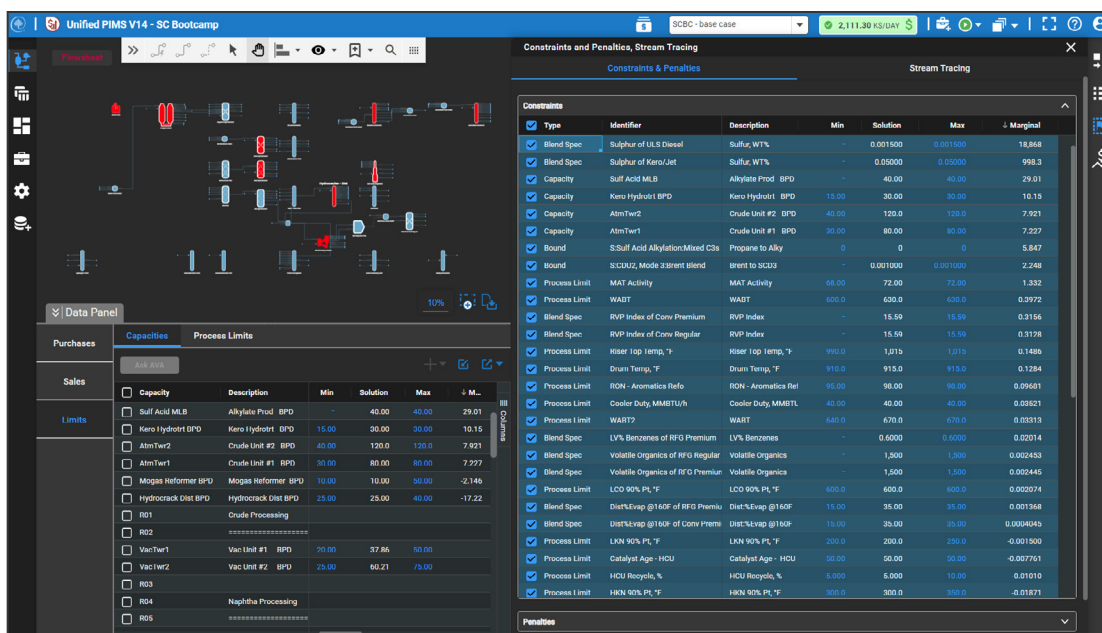


Figure 2. Aspen Unified PIMS flowsheet and constraint panel. Red indicates units with active constraints. List at right is sorted by highest marginal value, shown in dark mode.

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