

Aspen Polymers

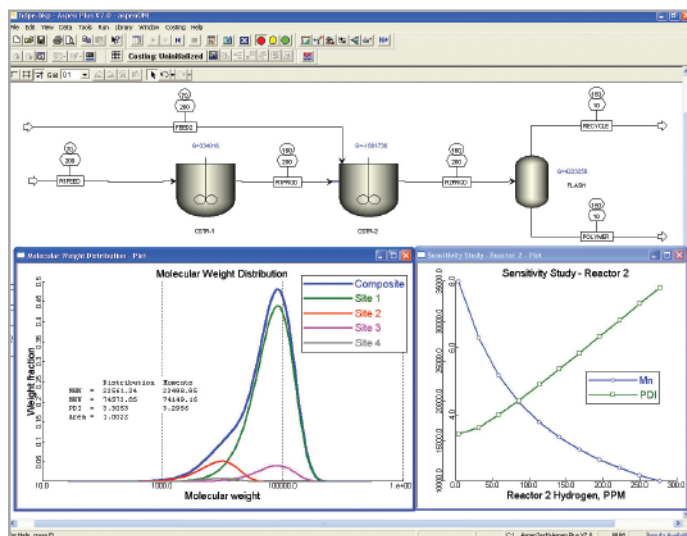
Conceptual design of polymerization processes

Aspen Polymers is a market-leading, first-principles polymer modeling technology for accurate and reliable simulation and optimization of polymer processes. It is fully integrated with industry-standard simulators including Aspen Plus®, Aspen Plus Dynamics®, and Aspen Custom Modeler®.

Use Polymers Modeling Technology to Remain Competitive

Globalization, pricing pressure, as well as volatility of raw material and energy prices are some of the challenges facing the polymer industry. In order to remain competitive, companies must continually develop new and innovative products and optimize existing plants and processes.

Aspen Polymers addresses these challenges by allowing for rapid new product innovation and increased operational productivity through process modeling. By capturing all the process know-how in one place, an Aspen Polymers model enables companies to run plants in a more efficient manner and produce higher quality products.



Aspen Polymers enables Aspen Plus to simulate all types of continuous polymerization processes, allowing you to optimize production rate while meeting product specifications. The resulting models can also be used with Aspen Plus Dynamics to study grade and rate transitions and to evaluate the process control strategy.

Key Benefits

- **Research and Development:** Reduce experimentation in the bench-scale and pilot plant units, enabling faster introduction of new products into the market.
- **Engineering:** Identify optimal operating conditions, leading to 2-10% increased capacity and incremental profit increases of \$1-15M/year.
- **Safety:** Conduct reactor runaway and shut-down safety analyses when used with Aspen Plus Dynamics.
- **Operations:** Use Aspen Polymers models as online soft sensors to monitor process operations and as an offline engineering tool to evaluate grade transition policies in order to minimize transition time and off-spec product.

||||||| Key Technical Features

- **Efficient workflow** for process design, equipment sizing, and preliminary cost estimation within one environment through integration with other aspenONE™ Process Engineering tools including *Aspen Process Economic Analyzer* cost modeling software and *Aspen Exchanger Design & Rating* heat exchanger design tools.
- **Online deployment of models** as part of an open-loop operator advisory system or as a soft-sensor in advanced process control applications when used with *Aspen Online Deployment™* and *Aspen Simulation Workbook™*.
- **Polymer characterization** using AspenTech's patented technology to fully characterize polymers and oligomers and to track the evolution of molecular weight distribution for most types of polymers.
- **Industry-leading physical properties**, employing state-of-the-art polymer activity coefficient models and equations of state; includes extensive databases of polymer segments, initiators, and phase equilibrium parameters.
- **Polymerization kinetics** includes the most comprehensive set of polymerization kinetic schemes available on the market. User-defined reactions can be included to account for new or unusual chemistries.

||||||| Extending the Value of Process Models

Aspen Polymers can be used for steady-state process simulation inside *Aspen Plus* or dynamically with *Aspen Plus Dynamics* or *Aspen Custom Modeler*:

- *Aspen Plus Dynamics* is used to carry out safety and controllability studies, examine reactor dynamics in detail, size relief valves, optimize transition policies, and develop startup and shutdown policies for polymerization plants.
- *Aspen Custom Modeler* can be used to develop custom models of polymerization processes or equipment, such as reactors, dryers, extruders, and crystallizers; these models can be re-used inside *Aspen Plus*.

Aspen Plus Dynamics and *Aspen Custom Modeler* environments are intrinsically equation-oriented, making them ideal platforms for simulating gas-phase polyolefin processes or other polymerization processes involving high recycle rates and/or complex flowsheets.

||||||| aspenONE Process Engineering

Aspen Polymers is a key component of aspenONE Process Engineering for the process industries. aspenONE Process Engineering is an integrated lifecycle solution – from conceptual design through to plant start-up and operations support – enabling you to model, build, and operate safer, competitive, and more reliable process plants. Companies are able to reduce capital and operating costs, increase engineering efficiency and quality, and accelerate time-to-market with payback in months instead of years.

||||||| About AspenTech

AspenTech is a leading supplier of software that optimizes process manufacturing—including oil and gas, petroleum, chemicals, pharmaceuticals and other industries that manufacture and produce products from a chemical process. With integrated aspenONE solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing and supply chain operations. As a result, AspenTech customers are better able to increase capacity, improve margins, reduce costs and become more energy efficient. To see how the world's leading process manufacturers rely on AspenTech to achieve their operational excellence goals, visit www.aspentech.com.



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