

Soap Manufacturer Saves Over \$4 Million with SDI Industry® Pro

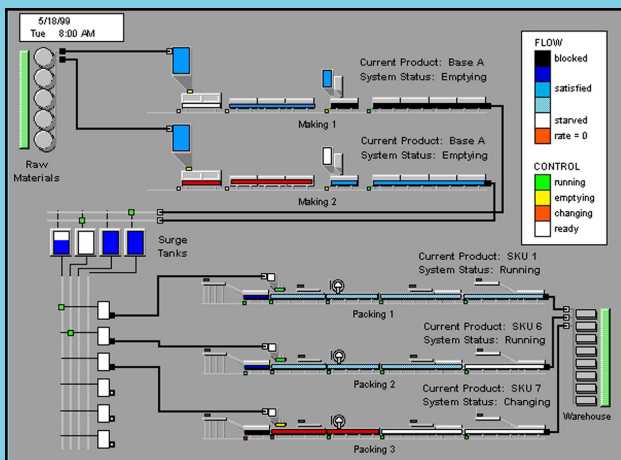
A world renowned soap manufacturer needed to consolidate its manufacturing plants from multiple sites into one optimized production facility. The existing sites manufactured over 300 different products.

In predicting the feasibility of the project, it was imperative to consider equipment design and sizing issues in combination with operational strategies. The overall system performance is closely tied to conditions that change over time, such as:

- Variable demand and seasonality
- Product mix
- Breakdowns and equipment variability
- Crewing patterns
- Product run sequencing

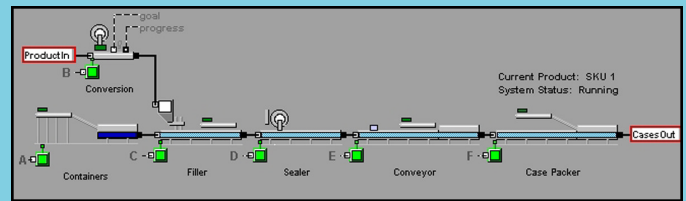
The logistics manager chose simulation as a way to explore the effects of these issues and build an understanding of the overall system. Simulation was selected over other analysis tools because it is the only tool that captures real-world system variability and subsystem event interactions. The manager partnered with Simulation Dynamics to build a model using SDI Industry Pro. SDI Industry Pro provided the following capabilities targeted to the process-oriented industries:

- DISCRETE RATE technology for high volume processes
- Embedded database for high-speed access to relational data
- Multi-stage sequential schedule definition



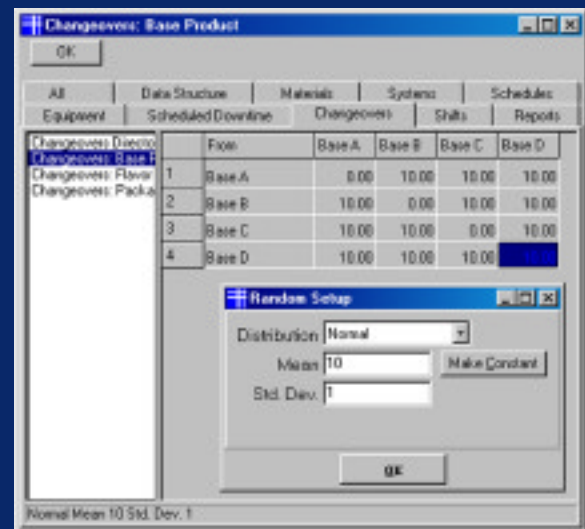
A model of the entire plant shows the status of all lines (blocking/starving, changing over, emptying, surge, etc.) as a result of production schedules.

The software leverages a block approach, so that an end user works with high-level templates, while a model builder can work with more detail level blocks and dialogs.



A detailed sub-model (H-block) nested within the larger model shows additional detail within the line.

Experimentation with the simulation provided confidence in the consolidated facility strategy. This helped to characterize the balance and to predict the optimal buffer size between processing and packaging. For a given set of products, it was determined that the envisioned machine assignments would result in excess time in system which would create a quality problem. Other product routings and assignments were tested in the model to demonstrate how the problem could be avoided. One configuration predicted severe long-term quality problems which would require a \$4 million dollar retrofit. Luckily this retrofit was avoided completely through understanding gained because of the simulation.



Dynamic factors affecting throughput are incorporated in the model using an embedded database.

Due to the success of this project, the company now requires that a simulation study be done prior to committing to any major capital expenditure. The logistics manager for this project expanded the scope of the simulation to study the dynamics of supply and distribution policies throughout the division.

Understanding

Prediction

Decision Support