

# VirtECS<sup>®</sup> MANUFACTURING PLANNING & SCHEDULING SOFTWARE

VirtECS software, created by Advanced Process Combinatorics, Inc. (APCI), delivers a range of capabilities built around proprietary core solver technology.

## TECHNOLOGY FOR REAL-WORLD APPLICATIONS

For plant scheduling applications, VirtECS integrates with and augments your existing manufacturing software systems, resolving the universal shortcomings of other system's scheduling capabilities and modules. VirtECS automates and simplifies the cumbersome spreadsheet-based approaches many companies still employ, providing precise detailed solutions faster.

- Process Modeling
- Capacity Analysis
- Debottlenecking
- Production Planning
- Finite Capacity Scheduling

VirtECS software is employed at locations world-wide by leading companies in electronics, chemical, pharmaceutical, food and beverage, and other consumer product industries. VirtECS superior capabilities are the product of years of R&D in the field of combinatorial mathematics, and continuous refinement of practical solutions in industrial applications.

## UNIQUE MATHEMATICS COMBINED WITH INTUITIVE CONTROL

The VirtECS Model Editor integrates data from multiple sources to generate a model that describes current and future demands, plant equipment, process flow, current inventory levels, etc.



The VirtECS Scheduler is an interactive tool that:

- Handles all the math and interactions defined in the model to generate analysis, planning or finite capacity scheduling solutions that never violate constraints, including material availability at every point in time.
- Intelligently reduces the search space to produce good working solutions very rapidly for problems which are inherently NP-complete, requiring impractically long computing time without APCI's proprietary and industry-unique techniques.
- Provides user control to reshape the automatically generated schedules while still enforcing all constraints. Experience has shown this flexibility is essential to incorporate user knowledge of unmodeled constraints, preferences, or transient operational states.

Each resulting planning or scheduling solution can be published from VirtECS to include reports, spreadsheets (which often mimic those already familiar to plant personnel), and reintegration of data output with other systems such as ERP and MES. Schedules can also be published to a local VirtECS Symphony web server for real time navigation and status accessible by multiple plant floor personnel from the web browser on any mobile device.

## EXPERT CONSULTING SERVICES

APCI project teams provide expertise in model building, application-tailored VirtECS Scheduler strategies, and data integration in collaboration with clients to implement complete solutions that improve the bottom line.



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COMBINATORICS  
INC.**

