



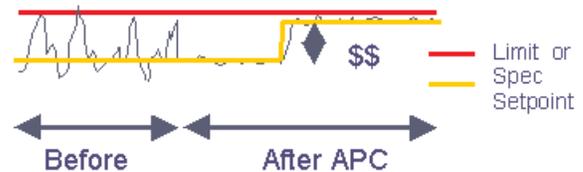
SMARTPROCESS DISTILLATION COLUMN OPTIMIZER

Maximize Distillation Column Performance

You can take advantage of Emerson's SmartProcess® Distillation Column Optimizer to maximize performance of your distillation columns. By using the advanced process control (APC) technology in the SmartProcess solution, Emerson can deliver a turn-key optimized distillation column solution.

Emerson's SmartProcess solution cuts your operating costs by:

- Reducing product quality variation and off-spec production
- Minimizing quality giveaways



Actual savings depend on energy costs, product values and operating objectives, but many SmartProcess users have seen payout on the order of months.

- Minimizing energy consumption per unit feed
- Maximizing feed rate when desired
- Increasing recovery of more valuable products
- Lowering cost of implementation.

Emerson Process Management delivers a configurable package for model predictive control (MPC) of distillation columns using the embedded advanced process control (APC) technologies in the SmartProcess solution. The solution includes complete software and services to implement MPC and neural modules for control of any multi-product distillation column.

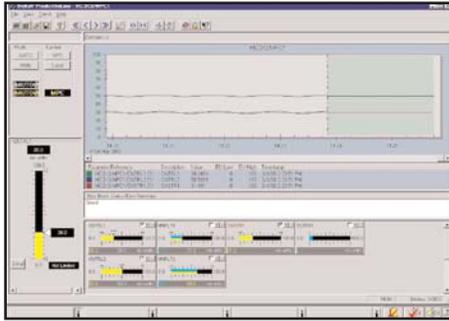
Solution

Distillation columns are classic examples of highly interactive, multivariable processes that exhibit long delays and lag times – difficult conditions for closed-loop PID controllers to work satisfactorily. Operating objectives for columns may include controlling both overhead and bottoms product purities, minimize energy, maximize feed and control within equipment limits.

The SmartProcess Distillation Column Optimizer includes:

- One multivariable controller with up to 4 manipulated variables
- Two neural blocks to predict product compositions





Model predictive control technology in action.

- Standard distillation calculation blocks:
 - Internal reflux
 - Column vapor
 - Liquid traffic
 - Jet flooding
 - Reboiler and condenser duty
 - Pressure compensated temperature
- Standard operator control graphics
- Engineering services:
 - Application design
 - Configuration
 - Step testing
 - Commissioning
 - Operator training.

Distillation experience

Our Advanced Applied Technologies consultants have implemented SmartProcess solutions for a broad range of columns in a wide variety of industries, including:

- Refinery gas plants, main fractionators, crude and vacuum columns
- Petrochemicals: olefins, aromatics, p/p splitters, etc.
- Chemicals: methanol, ethanol, etc.
- Gas processing: fractionation train, cryogenic columns.

Services provided

Emerson's Advanced Applied Technologies consultants provide turn-key services to design, configure, install and commission a complete SmartProcess solution for distillation columns or fractionation trains. At the start of a project, our experienced consultants will review the process and actual operating data to confirm the controller design and estimate potential economic return.

A project then proceeds in phases as follows:

- Pre-step tests and plant test design
- Column APC engineering design document
- Plant step tests and data collection
- Model identification and controller building
- Controller simulation and testing
- Commissioning.

SmartProcess solutions from Emerson

Emerson's Advanced Applied Technologies consultants are available to assist with any stage of a SmartProcess Distillation Column Optimizer project in a variety of roles, with industry experts that can help you design, justify and implement improved distillation column control that will show immediate results on your company's bottom line. Call us to find out how.

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