

FEATURE REPORTS

Energy Efficiency

Summary: This two-part report presents different methods that can be applied for improving the energy efficiency of your production plant. One part will look at the process of benchmarking. A process, known as continuous energy improvement, is presented, outlining the methodology required for a successful strategic approach to realistic energy optimization targets. Specific case studies from the petrochemical sector are included to illustrate the complexity of the challenge.

The second part, energy optimization using pinch analysis, first presents an overview of pinch analysis and how it can be used to determine areas where energy savings can or cannot be realized. Practical considerations to using these techniques effectively will be illustrated in this article.

Related equipment and services: Engineering consulting, software for thermodynamics and pinch analysis, energy optimization, heat exchanger design, and so on

Control Valve Diagnostics

Summary: Inaccuracy of control loops is to blame for poor performance and product loss throughout the CPI. In this article, the operation and significance of control valve diagnostics is explained, using an actually existing problem for the presentation. Then, a newly developed, diagnostics-based method is briefly described.

Related equipment and services: Control valves, diagnostic tools, and process control systems and instruments.

FOCUS

Piping, Tubing and Fittings

Summary: This section will include a group of short descriptions of recently introduced products and services related to pipes, tubes and fitting hardware for chemical processing applications.

Related equipment and services: Plastic piping, metallic piping, pipe fittings, flanges, expansion joints, fiber-reinforced plastic (FRP) pipes, flexible tubes

NEWSFRONT

Dust Control

Summary: The latest new products and technologies for dust control will be presented in this news roundup.

Related equipment and services: Filter media, filtration systems, cyclones, electrostatic precipitators, gas scrubbers and so on

Send editorial material for consideration to contributing editor, Joy LePree (jlepree@che.com).

Employment Outlook for Chemical Engineers

Summary: This news feature will explore various perspectives on the current work environment for chemical engineers, including industry trends that affect the workplace, as well as workforce issues and the latest salary data.

Related equipment and services: Executive recruitment services, workforce development consulting, human resources services for industrial manufacturing

FRACTIONATION COLUMN

Summary: This monthly column in *CE* is written by the technical director at Fractionation Research Inc., a consortium of end-users, engineering companies and distillation equipment providers that pool budgets on distillation research.

Related equipment and services: Distillation towers, trays and packings, tower scanning equipment and services

ENGINEERING PRACTICE

Oil Mist Systems: Choosing the Best System

Summary: Plant-wide oil mist systems have been used for decades to lubricate bearings on rotating equipment throughout the CPI. While closed-loop systems have been dominant, less-expensive open-loop systems have grown in popularity in recent years. This article discusses the pros and cons of both approaches.

Related equipment and services: Rotating equipment, such as pumps, compressors, turbines and more, bearings and bearing systems, lubricants, consulting services and software related to plant maintenance and reliability

Planning Piping Purchases — Quantifying and Minimizing the Risk

Summary: This article discusses an issue that presents itself in almost every large capital-intensive process plant project — the need to plan and acquire piping bulk materials before the project design is mature. Guidance is provided on how to assess and mitigate risk during the process.

Related equipment and services: Piping and piping-related accessories, consulting and software related to cost engineering, materials-management software, goods and services related to engineering, procurement and construction (EPC)

FACTS AT YOUR FINGERTIPS

Level Measurement

Summary: This one-page reference will provide an overview of many of the methods and instruments used for level measurement in the CPI, as well as which devices are more suitable for various applications.

Related equipment and services: All kinds of level measurement systems, including differential pressure devices, mechanical floats, electromechanical level devices, capacitance probes, radar and ultrasonic devices, hydrostatic pressure sensors and magnetoresistive devices

ENVIRONMENTAL MANAGER

Modern Concepts in Makeup Water Production

Summary: Water is essential in virtually all chemical process industries (CPI) plants. A very important unit operation is makeup water treatment to produce water that has the purity required for heat exchangers and steam turbines. Like other technologies, the processes utilized to produce high-purity water have been greatly improved over the last decades. This article examines several of the most modern techniques for makeup water production including filtration, reverse osmosis, ion exchange and more.

Related equipment and services: Filters of all types; membranes, such as reverse osmosis membranes; water-treatment chemicals; clarifiers; water analysis instrumentation

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