Alarm Management

**Feature Reports**

**Summary:** Part one of this two-part Feature on alarm management reviews benchmark metrics associated with alarm management. While most articles previously published on alarm management cover alarm concepts, alarm management methods, justification and tools, this article provides a different perspective. Written for process-plant operation managers and others who routinely receive “Alarm Management Performance” reports, this article aims to explain the most common metrics, without burdening the reader to understand the alarm management discipline in depth. Part two will cover the implications of incorrectly configured control systems, which can generate large numbers of alarms. Alarm rates can exceed thousands per day or per shift. This is far more than any human can possibly handle successfully. This article examines the nature of the problem and its cure.

**Related equipment and services:** Instrumentation and control systems and equipment

**Relevant industries:** Process control and alarm management are important throughout the chemical process industries (CPI).

Shell-and-Tube Heat Exchangers

**Feature Reports**

**Summary:** Shell-and-tube heat exchangers are some of the most commonly used equipment in the CPI, especially in petroleum refineries and chemical facilities. The design cycle of a heat exchanger starts with the process engineer. However, to ensure a smooth fabrication, startup and operation, the cycle further goes through a mechanical design stage followed by detailed design by the fabrication vendor. The final geometry of the heat exchanger released for fabrication should meet both the process as well as the mechanical requirements. This Feature Report outlines the basic principles of thermal design, including types of heat exchangers, selection of shell-side and tube-side fluids, and geometric parameters for design. Then, a practical step-by-step example of the heat-exchanger design cycle is provided. A case study is used as an example.

**Related equipment and services:** Heat exchangers, materials of construction, heat-transfer fluids, design and simulation software, and associated equipment (pumps, valves, instrumentation and control devices)

**Relevant industries:** Many sectors of the CPI use heat exchangers, especially petroleum refining, petrochemicals and chemicals, and power generation.
Composites and Lightweight Materials

Summary: Materials must be strong and resilient, but a number of industries are also seeking very lightweight materials with advanced properties. This month’s Newsfront will examine some applications for advanced composites and lightweight materials in the CPI and beyond, and also look at their use in renewable-energy applications, such as wind turbines and solar cells. Some advanced lightweight materials will be covered, as well as some efforts to recycle composites.

Related equipment and services: Composites, ceramics and other high-performance materials and coatings, as well as pipes, tanks and other equipment and components that could be constructed from or treated with advanced composite materials.

Relevant industries: All sectors of the CPI may use composites or lightweight materials

Editorial material for consideration should be sent to assistant editor Mary Page Bailey mbailey@chemengonline.com

Pumps

Summary: Pumps are the heart of any operation in the CPI. This month’s Equipment Newsfront will provide an update on the new models entering the market, as well as the new features that modern pumping systems are using.

Related equipment and services: All types of pumps, sensors and other technology for monitoring pumps and keeping them operating properly (Internet of Things/Industry 4.0 — new apps, for example)

Relevant industries: All sectors of the CPI use pumps.

Editorial material for consideration should be sent to contributing editor, Joy LePree jlepree@chemengonline.com

Particle-size analysis

Facts At Your Fingertips

Summary: This one-page reference will offer tips for selecting the most suitable particle-sizing technology for particular processing applications. The column will summarize the strengths and limitations of particle-sizing techniques such as sieving, laser diffraction, imaging and dynamic light scattering.

Related equipment and services: Particle-size analysis instruments and software, solids handling tools and equipment

Relevant industries: Any CPI operation that involves the handling of solid materials would be interested in particle sizing. These include foods, pharmaceuticals, fertilizers, biomass, powder coatings, chemicals and others.

Level Monitoring and Control

Focus

Summary: Monitoring and controlling the level of materials (liquid or solid) in tanks, vessels and storage containers is crucial to the safety of many processes. This product roundup will showcase the latest advances related to level monitoring and level control.

Related equipment and services: Level monitors, sensors and transmitters, tanks and vessels, reactors

Relevant industries: All CPI sectors use devices to monitor and control level in vessels, tanks and reactors.

Editorial material for consideration should be sent to Suzanne Shelley, contributing editor sshelley@chemengonline.com
Managing Materials in Complex Engineering & Construction Projects

**Engineering Practice**

**Summary:** Capital projects are notoriously complicated, involving numerous tasks being planned, executed and managed in parallel. Materials management is a particular aspect of the detailed design of complex capital projects. This article provides practical, actionable information to help project teams manage the purchasing, transportation, expediting, logistics management and control of materials across the entire lifecycle of the capital project.

**Related equipment and services:** Pumps, valves, piping, reactors, control systems, transportation and logistics management, structural steel

**Relevant industries:** All CPI segments carry out capital-intensive processes that require solid management for optimization.

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**Event: American Filtration Society Oil, Gas and Chemicals Filtration & Separations Conference and Expo Show Preview**

**Summary:** This show preview will cover some of the products and services that will be showcased at the Oil, Gas and Chemicals Filtration & Separations Conference and Expo. Presented by the American Filtration Society, the event will occur May 9–11 in Houston.

**Related equipment and services:** All types of filters (cartridge, bag, pressure leaf, horizontal belt, rotary vacuum, Nutsche, filter press, disk, centrifuge, and more), as well as filter internals and elements, and any associated ancillary equipment

**Relevant industries:** Filtration is a key focus for all CPI sectors, including bioprocessing, water treatment, food-and-beverages, mining, petroleum refining, petrochemicals and pharmaceuticals.

Editorial material for consideration should be sent to assistant editor Mary Page Bailey mbailey@chemengonline.com

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**Interphex 2016 Show Preview**

**Summary:** This show preview will include coverage of some of the products and services that will be displayed at Interphex 2016's exhibit hall. Focusing on pharmaceuticals and biotechnology manufacturing, Interphex 2016 is taking place April 26–28 at the Jacob Javits Center in New York City.

**Related equipment and services:** All equipment that is used for the processing and manufacture of products in the pharmaceutical or biotechnology industries

**Relevant industries:** This show preview is relevant to the pharmaceutical and biotechnology industries, as well as solids-processing equipment and packaging

Editorial material for consideration should be sent to assistant editor Mary Page Bailey mbailey@chemengonline.com

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**Marketing and Advertising Tools**

In addition to providing you with the next issue’s editorial upcomings, please see the marketing articles and tips below to help make your job easier!

4 Things Marketers Must Do Better in 2016

The Top 10 Stories of 2015

Chick-Fil-A Steps on the Social Media Gas Pedal

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**Editorial Submissions**

**Editorial submissions and guidelines**

For product-related news, please send press releases to newproducts@chemengonline.com

For news of a business nature (project wins, mergers and acquisitions, personnel changes, and other business deals and alliances), the comparative address is biznews@chemengonline.com

To submit a manuscript, please use manuscripts@chemengonline.com