



### FEATURE REPORTS

#### Centrifugal Compressors for CPI Plants

**Summary:** The growth of centrifugal compressors in chemical process industries (CPI) applications in recent decades has been brought about by four factors: 1) advances in dry-gas seal technology; 2) modern aerodynamic, rotor-dynamic and thermodynamic knowledge and techniques; 3) advanced manufacturing methods for producing accurate rotating parts and various complex components with reasonable costs; and 4) the ability to simplify the control and anti-surge systems of centrifugal compressors (and their drivers) through the use of modern control and variable speed technologies.

Centrifugal compressors, because of their simplicity, reliability, low-weight and compact design, have become much more popular for use in CPI plants. As CPI plant sizes increase, the pressure to improve reliability is very high because of the large economic impact of a nonscheduled shutdown. Run time between centrifugal compressor overhauls currently is three to six years or more. This month's Feature Report presents guidance to improve selection, performance and reliability of centrifugal compressors.

**Related equipment and services:** Compressors and compressed air, sealing technology, and other components for compressors

#### Water Savings

**Summary:** This article explores methods for reducing water use at large chemical facilities.

**Related equipment and services:** Water reuse technologies

### NEWSFRONT

#### Sensors

**Summary:** Sensors for physical and chemical quantities are the nerve center of any plant in the chemical process industries (CPI). This month's Newsfront will present the latest technologies that have been or soon will be commercially available.

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

**Related equipment and services:** All types of sensors

#### Technology Showcase on Adsorption and Adsorption

**Summary:** Adsorption and absorption play a big role in reducing air pollution around the world. This Technology Showcase outlines the major uses and market trends for adsorbents and absorbers. It includes a small, but fast-growing segment that uses ozone and oxidants in combination with absorbers.

**Related equipment and services:** All equipment and materials (such as clays and activated carbon) related to adsorption and adsorption

### 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

### FACTS AT YOUR FINGERTIPS

#### Liquid Dosing

**Summary:** This one-page reference will cover key considerations for equipment used in chemical dosing.

**Related equipment and services:** Chemical dosing pumps, metering pumps, peristaltic pumps and tubing

### ENGINEERING PRACTICE

#### Pipe Vibration Analysis

**Summary:** Piping vibrations can lead to fatigue failures. In design adequacy checks, the exciting forces must be quantified, but doing so is difficult because of the complexity of fluid flow. The article presents a method for determining the response of piping to vibration stresses using the theory of vibrations in the frequency domain.

**Related equipment and services:** Pipes, piping materials, pipe hardware, fittings and supports, and tools for analyzing piping system design



### Avoiding Problems During Distillation Tower Startup

**Summary:** This article provides practical tips and tools for both efficient startup and effective problem analysis for a distillation tower (depropanizer unit) that was experiencing loss of the downcomer seal. The symptoms observed and sequence of events that were involved to rectify the problem are discussed in detail.

**Related equipment and services:** Distillation towers, tower internals (trays and packings), liquid-level instrumentation, flowmeters, distillation-related modeling software, condensers, strippers, chilling systems

### FOCUS Pumps

**Summary:** This section will include a group of short descriptions of products and services related to pumps for chemical process industries (CPI) applications.

To be considered for coverage in this section, please send a news release and high-res photo (>300 dpi) to Dorothy Lozowski (dlozowski@che.com) with "May Focus on Pumps" in the subject line.

**Related equipment and services:** All types of pumps, such as positive displacement and centrifugal pumps, used in the CPI

## SOLIDS PROCESSING

### Designing Pneumatic Conveying Systems

**Summary:** This article presents a practical calculation method that can be used to perform the following functions: Design of new systems; Prediction of maximum solids-transfer rate using existing gas supply and conveying line; Determination of gas flow needed for a specific solids-transfer rate, using an existing conveying line; Sizing of the conveying line for a specific solids-transfer rate using existing gas supply; Modifying any of the above by increasing the line diameter along the conveying line to maintain a specific conveying velocity or a terminal velocity, or a maximum conveying pressure.

**Related equipment and services:** Pneumatic conveying systems, fans and blowers, air filters, pneumatic conveying lines, and solids handling equipment such as bins, silos, blending equipment, screening and so on

## Advertise in the Achema Daily

The Achema Daily closes on May 25th. Don't miss out on this great opportunity to increase company exposure at the world's largest trade show for the chemical process industries!

## SHOW PREVIEW

### Achema 2012 Preview 1

**Summary:** With over 3,300 exhibitors, nearly 1,000 conference presentations and an expected 200,000 visitors, the Achema Conference and Exhibition is the world's largest and longest-running trade show for the chemical process industries (CPI). The May issue will present the first of two previews, giving readers a small taste of some of the new products and services being exhibited at the fair.

Send editorial material for consideration to senior editor, Gerald Ondrey (gondrey@che.com)

**Related equipment and services:** All types of process equipment; instrumentation and control; process technology; laboratory equipment; plant engineering, design and construction technology; software

## LOOK FOR THESE ARTICLES COMING IN THE JUNE ISSUE:

### Feature Reports

Tanks & Vessels

Boilers & Steam Handling

### Equipment Newsfront

Explosion Protection

### Equipment Focus

Software

### Facts at your Fingertips

Drying & Evaporation