

FEATURE REPORTS

Corrosion

Summary Part I: *Flow-accelerated Corrosion.* Dissolved oxygen in heat-recovery steam generators (HRSGs) can present problems in uncontrolled environments, and there has been conventional thinking that adding oxygen scavenging chemicals was necessary to prevent corrosion. But the reducing environment created by the oxygen scavenger feed can result in single-phase flow-accelerated corrosion (FAC). This article examines the chemistry behind oxygen scavenging and explains how it causes FAC. Also, the article explores solutions to FAC.

Summary Part II: *Corrosion in flexible hoses.* Flexible hoses are often used in burner piping, but they can present unique challenges for corrosion. Using a failure analysis of burner piping as an example, the article explains the corrosion problems observed with flexible hoses.

Related equipment and services: Steam-system equipment, burners, burner piping and hoses, anti-corrosion products, including coatings, additives, etc.

Relevant industries: Corrosion is a concern for all industries, specifically for equipment performance and lifetimes, as well as contamination and others.

Heat transfer fluids

Summary: An important unit operation in the chemical process industries (CPI) is heat transfer. Moving heat to or from a reactor, boiler or other process unit is frequently performed with heat exchanger fluids. A number of different fluids are available for meeting the wide variety of temperature ranges and other process conditions.

This Feature Report will present practical information about such topics as heat-transfer-fluid selection, as well as operation and maintenance procedures.

Related equipment and services: All types of heat-transfer fluids, including oils and synthetic organic compounds; heat exchangers and heat-transfer systems; heat-recovery units, and so on.

Relevant industries: All sectors of the CPI use heat exchangers and many of these require heat transfer fluids (that is, besides those applications in which water is the heat-transfer fluid). Especially important are power generation (including solar-thermal plants), petroleum refining, petrochemicals and chemicals, pharmaceuticals and fine chemicals, bulk chemicals, minerals and so on.

NEWSFRONT

Professional engineer requirements

Summary: In the U.S., certification requirements for Professional Engineers differ by state, but a strange situation exists in California, and has for over 10 years. Currently, California state law states that civil engineers are the only

ones who are legally able to practice engineering activities and science. This is a concern to many chemical engineers, who either live in or work on projects in the state of California. This article summarizes the issue and what is currently being done about it.

Plastics processing

Summary: Although many of the machines used for processing plastics are mechanical, there is also a lot of ingenuity going into the development of reactors, extruders and other types of equipment for the processing and production of polymers. This Newsfront will present the latest developments in this field.

Related equipment and services: Reactors for polymerization (melt, condensation, fluidized bed, and so on); mixers and blenders; polymer filters; static mixers; dosing equipment; process control systems and associated sensors and transmitters; extruders; catalysts; pastillation equipment; agglomerators; and so on.

Relevant industries: Plastics processing is the main CPI sector for this story, but the equipment being presented can also find applications in other areas involving polymers, including rubber, starch and biopolymers.

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

FACTS AT YOUR FINGERTIPS

Temperature measurement and control

Summary: This one-page reference will take a look at thermowells, including the advantages and disadvantages of immersion versus non-intrusive temperature measurement techniques, as well as installation.

Related equipment and services: All temperature measurement devices, including thermocouples, external clamp sensors, resistance temperature detectors (RTDs) and others.

Relevant industries: Temperature monitoring and control is important in almost all processes across industries.

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March 14**

This month's topic will cover safety. Don't miss this exclusive opportunity to introduce your products and services with a banner ad, white paper, or text ad.

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.

Relevant industries: This column addresses segments across the entire CPI, and is relevant in the currently booming markets of downstream oil and gas processing.

ENGINEERING PRACTICE

Integrating gas turbines into CPI plants

Summary: Gas turbines are widely used in CPI facilities, to generate power or to drive equipment such as compressors. The hot exhaust from gas turbines contains heat that can be captured for use in the facility, for maximum thermal efficiency. This article discusses the challenges that can arise as such integration is carried out, and discusses how certain design considerations will impact the tradeoff between maximizing thermal efficiency and ensuring desired operational flexibility. The article also discusses proven maintenance and monitoring strategies to ensure peak operation.

Related equipment and services: Aero-derivative gas turbines, compressors, heat-recovery boilers and other units, furnaces, burners, inlet air filters

Relevant industries: Gas turbines are widely used in all CPI facilities to generate power and drive machinery (such as compressors).

FOCUS

Bins, silos and storage

Summary: This Focus will present short descriptions of recently launched products and services in the area of storage and transport of chemicals.

Related equipment and services: Intermediate bulk containers (IBCs), chemical storage tanks, jugs, secondary containment pallets, chemical storage cabinets.

Relevant industries: Storage containers and vessels for chemicals are used across virtually all industries for transporting raw materials and chemicals.

For editorial consideration in this section, send written descriptions and product photos to associate editor Scott Jenkins (sjenkins@che.com). Please include "March Focus: Bins, Silos and Storage" in the subject line of the email.

Pumps

Summary: This month's Focus department will present the latest pumps that have been recently introduced.

Related equipment and services: Pumps of all type and size.

Relevant industries: Every CPI plant is going to use pumps.

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

ENVIRONMENTAL MANAGER

Responding to a regulatory agency inspection

Summary: One of the most unsettling experiences in a company's existence may be the surprise regulatory inspection by a representative of the U.S. Environmental Protection Agency (EPA) and/or a state environmental agency. What if you refuse to let them in? What are your rights? How can you best ensure that the inspection goes smoothly? This article briefly summarizes the government's environmental inspection authority and provides some practical tips on how to prepare for and survive an environmental inspection.

Related equipment and services: Consultants who provide guidance on regulatory issues including environmental permitting; Software that aids regulatory record keeping.

Relevant industries: This article is relevant to all CPI industries.

LOOK FOR THESE ARTICLES COMING IN THE APRIL ISSUE:

HOW TO IMPLEMENT COMBINED HEAT AND POWER

GAS DETECTION AND TECHNOLOGY

INNOVATION IN SINGLE-USE TECHNOLOGY

European Special Section

Engineering professionals all over the world will read this report to learn about leading suppliers in Europe and what they have to offer the CPI. Don't miss this special advertising opportunity!