



FEATURE REPORT

Evaluating and Reducing the Risks of Pneumatic Pressure Testing of Vessels and Piping

Summary: The pressure testing of process piping and vessels in liquefied natural gas (LNG) and other cryogenic facilities is essential. Residual water left by hydraulic pressure testing could result in operational problems if not completely removed. Complete removal of residual water can be very difficult and time consuming. Pneumatic pressure testing avoids these problems, and is frequently used for piping and vessels in which moisture is undesirable. However, hydraulic pressure testing with water is much more common than pneumatic pressure testing with a gas because the stored energy of compressed gas can be roughly 200 times the stored hydraulic energy for the test pressures in the range of 100 barg. Therefore, rupture of a piping test system during a pneumatic pressure test can release much more energy. In applications where pressure testing with liquids is undesirable, such as in cryogenic piping systems and vessels, pneumatic pressure testing can only be justified when care in fabrication and in non-destructive examination of vessels and piping reduces the probability of loss of containment to such a small value that risk is acceptable. This article outlines methods for evaluating the risks of pneumatic pressure testing of vessels and piping, as well as methods of risk reduction.

Related equipment and services: Piping and equipment used for cryogenic applications, such as LNG; rupture discs, pressure relief valves and other pressure relief systems; pressure measuring instrumentation; services and software related to plant safety.

Underground Piping

Summary: This article shows how to determine the loads that underground piping systems are subjected to so that they will be structurally sound. It also addresses the additional regulatory burdens that come with underground piping systems, such as leak testing, corrosion monitoring and mitigation, secondary containment, and so on.

Related equipment and services: Pipes and fittings; leak testing services; corrosion testing and monitoring.

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.

FOCUS

Analyzers

Summary: This section will highlight a sample of equipment and services for use in analyzing various process parameters in the CPI.

Related equipment and services: Analytical instruments, oxygen sensors, pH meters, thermometers, turbidity measurement, trace metals measurement devices, gas leak detection, gas monitors.

NEWSFRONT

Coal to chemicals

Summary: Coal-to-chemicals technology will be the focus of this Newsfront, covering the latest technology in gasification and a look at the growing number of projects around the world. The story will also look at progress for alternatives to coal for such gasification processes, such as biomass and municipal waste.

Related equipment and services: Engineering and construction; process technology licenses; gasifiers and gasification technology; catalysts; gas-cleanup equipment and technology, coal/biomass handling and processing equipment (conveyors, mills, dryers and so on) To contribute editorial content, please contact Senior Editor Gerald Ondrey, gondrey@che.com.

Solid-liquid separation

Summary: Many solid products are manufactured via solution, solvent, or slurry systems. The latest process equipment for recovering such products from liquids will be the focus of this month's equipment focus.

Related equipment and services: Filtration systems and media; centrifuges and decanters; crystallizers; dryers To contribute editorial content, please contact Contributing Editor Joy LePree, jlepree@che.com.



FACTS AT YOUR FINGERTIPS

Valves

Summary: This one-page reference will discuss recent technologies for valve position monitoring and will describe some of the performance challenges experienced by those using valve position monitors.

Related equipment and services: Valves, valve positioners, valve position monitors.

ENVIRONMENTAL MANAGER

Managing Compliant MSDSs

Summary: This article discusses the necessary aspects of a comprehensive program to manage material safety data sheets (MSDS) that are compliant with today's dynamic set of regulations.

Related equipment and services: Regulatory and legal services; chemical safety products, chemical cabinets, personal protective equipment.

ENGINEERING PRACTICE

SIS: Project Execution: Practical Tips to Manage Project Costs and Scheduling

Summary: This article provides guidance on how to properly scope out, plan for and execute the major steps in any capital-intensive project, to help streamline activities in the most cost-effective way, deploy all resources most efficiently, and reduce unnecessary costs and rework later. Much of the discussion focuses on the importance of properly developed piping and instrumentation diagrams (P&IDs) and the role of the lead process engineer.

Related equipment and services: Consulting services related to project planning, scope work and economic analysis, engineering-and-construction (E&C) services, tools and services related to developing piping and instrumentation diagrams (P&IDs).

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