

ABSTRACTS

Reducing the Risk of Legionnaires' Disease Associated with Cooling Towers

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To reduce the health and legal risks associated with Legionnaires' disease, facility managers should take steps to minimize *Legionella* bacteria in plumbing systems, open industrial equipment, water features, cooling towers, and other aerosolizing water systems. The risk of Legionnaires' disease associated with cooling towers can be reduced by controlling *Legionella* bacteria in cooling water and preventing transmission of the bacteria from towers to people. This paper presents nine reasonable ways to accomplish these goals.

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PowerPlant Chemistry Interview

PowerPlant Chemistry talks to William Stroman, the manager of water chemistry for the 15 cogeneration facilities of EPCOR USA, and asks him some questions about the power plant and the chemist's function in this utility.

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Cordierite-Supported Platinum Catalyst for Hydrogen-Oxygen Recombination for Use in Nuclear Reactors under LOCA

Arvind D. Belapurkar, Salil Varma, Archana Shirole, and Jyoti Sharma

Platinum catalysts supported on cordierite honeycomb and plates were prepared and evaluated for H₂-O₂ recombination reaction under static reaction conditions using various concentrations of H₂ in air. The time required for reaction of 50 % of H₂ ($t_{1/2}$) and the maximum temperature attained by the catalyst during exothermic H₂-O₂ recombination (T_{max}) were evaluated. The rate of reaction and T_{max} were found to increase with an increase in H₂ concentration. Pt supported on cordierite honeycomb maintained its activity for > 15 months. The catalysts were found to be quite active for H₂-O₂ recombination and resistant to various contaminants like CH₄, CO₂, CO, and water vapor. Catalytic activity and structural stability of the catalyst were maintained after exposure to 610 Gy of gamma radiation. The study indicates that cordierite-supported Pt catalyst is a promising catalyst for H₂ mitigation for use in nuclear reactors under loss-of-coolant accident conditions.

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A Brief Introduction to the International Association for the Properties of Water and Steam

In response to the requests of PowerPlant Chemistry readers, this paper provides a brief overview of the International Association for Properties of Water and Steam (IAPWS). The objectives of the IAPWS in regard to the properties of water and steam, particularly thermophysical properties and other aspects of high-temperature steam, water and aqueous mixtures, as well as the organization's activities, which include annual meetings, international conferences, working groups, and the development of formulations, releases, guidelines and certified research needs, are presented.

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Overview of Research on Corrosive Sulfur in Transformer Oil

Shun'an Cao, Rui Li, Yihua Qian, and Kai Sheng

This paper gives an overview of research on corrosive sulfur in transformer oil. The mechanism of transformer failure due to corrosive sulfur, the test methods for total sulfur and corrosive sulfur, the source of corrosive sulfur, the basic groups of sulfur and sulfur compounds in crude oil, and possible mitigation techniques for cuprous sulfide formation are introduced. Additionally, potentially promising research topics on corrosive sulfur are discussed.

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PPChem 101 – Fossil Cycle Chemistry**Lesson 7:****Feedwater Treatment with Organic Chemicals**

In the February 2008 issue, we introduced our project PPChem 101 "Fossil Cycle Chemistry" with the first lesson (*What Is Plant Cycle Chemistry and Why Is It Important for Steam and Power Generating Plants?*). In March, the second lesson (*Makeup Water Treatment*), in April the third lesson (*Cycle and Component Design, Materials, Operating Mode, and Plant Cycle Chemistry*), in May the fourth lesson (*Feedwater Treatment*) followed, in June the fifth lesson (*All-volatile Treatment*), and in July the sixth Lesson (*Oxygenated Treatment*). The focus of this lesson is on the feedwater treatment with organic chemicals, a possible alternative for industrial and cogeneration cycles with non-optimum condensate and feedwater quality.

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