

**Abstracts****A Look Back at the International Conference "Instrumentation for Power Plant Chemistry"**

On September 19–21, 2006 the PowerPlant Chemistry International Conference "Instrumentation for Power Plant Chemistry" was held in Zurich, Switzerland. This paper gives an overview of the conference, with abstracts of the 27 technical presentations, brief reports on the panel and breakout sessions, and a review of the conference exhibition of manufacturers of power plant chemistry-related instrumentation.

PowerPlant Chemistry 2006, 8 (10)

**On-Line Instrument QA/QC Standard Practices**

Daniel E. Meils and Joseph A. Mastroianni

This paper has been written to assist nuclear power plant laboratories in establishing a laboratory quality management system (QMS) to assure that the accuracy and precision of analytical data produced meets operational needs. Without such a QMS, data produced in a laboratory may not have the sufficient accuracy and precision, leading to inappropriate operational decisions being made. The paper addresses all the necessary requirements a nuclear power plant laboratory needs to fulfill to be able to establish a successful QMS, provide adequate analytical procedures, demonstrate adequate instrument capability, demonstrate laboratory capabilities, and demonstrate individual analyst capabilities.

PowerPlant Chemistry 2006, 8 (10)

**Luminescent Oxygen Sensor to Monitor Power Plants Water and Steam Cycles**

Frank A. Dunand, Nicolas Ledermann, and Serge Hediger

The majority of existing dissolved oxygen analyzers use polarographic sensors. These are well recognized for their accuracy and reliability, but maintenance complexity and frequency, as well as flow dependence and calibration needs are among the issues encountered by users. A new oxygen sensor has been developed based on luminescent technology. The main advantages of luminescent technology over electro-chemical cells are the operator independence of the calibration, the low flow requirement, the absence of flow dependence, and of course the drastic reduction of the maintenance activities. The application of luminescent technology to accurately measure low ppb oxygen concentrations is demonstrated based on laboratory and field experience in both all-volatile treatment (AVT) and oxygenated treatment (OT) environments.

PowerPlant Chemistry 2006, 8 (10)

**A Method for Continuously Monitoring and Selectively Sampling Plant Cycle Water for Metal Oxide Transport Analyses**

Richard A. Breckenridge, L. Joseph Hancock, Robert L. Bryant, and John W. Clark

Results from analytical methods for monitoring iron and copper transport through the plant cycle water may include dissolved species, but more typically detect insoluble compounds of metal oxides [1]. Since the presence of these insoluble particulates can be indicative of serious system problems, the methods provide useful quality control and troubleshooting information. However, the data is "averaged" over some time period, e.g., one day or one week. This is better than a single "grab sample," but these methods do not necessarily enable plant operators to identify when large "spikes" occur or what causes them. If information could be available, corrective or preventive actions could possibly be taken at the time of the incident.

An instrument that continuously samples plant cycle waters, detects very low levels ( $< 2 \mu\text{g} \cdot \text{kg}^{-1}$ ) of particulate metal oxides and automatically obtains a sample for laboratory analysis when the reading exceeds a preset threshold has proven to be very helpful in operating and maintaining reliability of steam generation systems.

PowerPlant Chemistry 2006, 8 (10)

**Press Release for IAPWS Annual Meeting at Witney, Oxfordshire, UK September 3–8, 2006**

PowerPlant Chemistry 2006, 8 (10)

**Meetings of the IAPWS Working Group 'Power Cycle Chemistry' in Witney, UK, September 3–8, 2006**

Robert Svoboda and Geoff Bignold

This paper reports on the sessions of the IAPWS working group "Power Cycle Chemistry" at the 2006 Annual Meeting of the International Association for the Properties of Water and Steam (IAPWS) in Witney, United Kingdom, September 3–8, 2006. It discusses, among other things, the 2006 working group Priority List of areas in need of basic research, the proposals for IAPWS Certified Research Needs developed from the priority list, a proposal for international collaboration, and presentations made at the meeting.

PowerPlant Chemistry 2006, 8 (10)

**Effects of Steam Chemistry on the Turbine Blades in the Phase Transition Zone**

Miroslav Šťastný, Olga Bláhová, Ivo Jiříček, and Bohumil Lorenc

This paper discusses the relationship between the concentration of corrosive anions in the steam and the occurrence of stress corrosion cracking of LP turbine moving blades. Although the titanium alloy (Ti6Al4V) proved stress corrosion resistant in the phase transition zone even with non-optimum chemistry, optimization of cycle chemistry and improvement in the quality of steam create conditions under which steel moving blades may also be applied in the phase transition zone without risk of stress corrosion cracking.

The deposits on the LP turbine blades in the phase transition zone significantly increase the surface roughness and lead to energy losses.

PowerPlant Chemistry 2006, 8 (10)