

InterCeram

>>> International Ceramic Review

1 **2009**
Januar
Vol. 58

The Design of Sanitaryware Plastic Clays with Emphasis on Advanced Rheological Measurements

Ranges of Application of Vacuum Extruders

Innovative Heat Treatment of Ceramics by using Low O₂ Technology

SSiC-Materials for Highly Stressed Components in Sealing and Bearing Applications

A Review of Recent Developments in Magnesia-Spinel Refractory Composites, Part 2

Effect of High Temperature Treatment on the Properties of Cordierite-Zirconia Nano Composites

Laminated Ceramic Polymer Composites for Ventilated Façade Systems

Reports

3rd International Conference on Electrophoretic Deposition: Fundamentals and Applications

Trade Fairs

CEVISAMA 2009

EUROMOLD 2008



the expertise

CERAMITEC 2009

Neue Messe München. 20.- 23. Oktober



ceramitec.de

11. Internationale Fachmesse Maschinen, Geräte, Anlagen, Verfahren und Rohstoffe für KERAMIK und PULVERMETALLURGIE

DVS
M E D I A

DVS Media GmbH
P.O. Box 10 19 65
D-40010 Düsseldorf

tential of the EPD technique for materials processing has not yet been fully exploited. In fact, burgeoning participation from the electrochemistry and nanoscience communities will broaden the scope and the potential user base for this versatile materials casting approach. These issues are the fundamental motivation for the organisation of the conference series, which has attracted some of the most recognised experts active in research and development in this area. The conferences of this series, with the Hyogo meeting as no exception, are focused, intimate meetings with a limited number of participants from industry and academia and plenty of time for discussions and ad-hoc brain storming short sessions.

Further insights

The program was organized in ten technical sessions, a poster session, and a final discussion session.

The technical sessions were:

- I) Advanced Experimental Techniques
- II) Nanostructured Materials and Films
- III) EPD Integrated Manufacturing Technologies
- IV) Functional Films and Deposits
- V) EPD of Carbon Nanotubes
- VI) Poster Session

- VII) EPD in Industrial Applications: Coatings
- VIII) Applications in SOFCS and Composites
- IX) EPD in Ceramic Processing
- X) Novel approaches

The first of two keynote lectures at the conference was presented by **Prof. J.H. Dickerson, Vanderbilt University, USA**. In his lecture, Prof. Dickerson discussed recent developments in the employment of EPD for the fabrication of nanoparticle heterostructures, a topic which has recently gained substantial interest in the EPD and nanoscience communities for the production of densely packed, nanostructured, functional films. The second keynote lecture was given by **Dr. J.S. Blackburn, Ionotec Ltd., UK**, who research explores the intermediate scale production of ceramics and ceramic coatings by EPD. Dr. Blackburn's talk proffered an intriguing industrial perspective on EPD applications.

Other presentations at the conference spanned a wide range of topics including: the incorporation and deposition of ceramic powders into functional casts and coatings, such as anti-corrosion coatings, bio-compatible materials, and solid-oxide fuel cell media, via EPD; novel EPD techniques employing high dc electric fields, coupled electric and magnetic fields, and pulsed electric fields to produce casts of materials; and approaches to the deposition of carbon nanotube-based films.

Social events

Throughout the five day conference, open debate, exchanges of ideas, and stimulating conversations accompanied the strong array of lectures and poster presentations. Additional ad-hoc continued late into the evening in the form of coffee breaks and organized social events, which are characteristic of ECI-sponsored meetings. The technical programme was complemented by a full social programme, which included a welcome reception, an excursion to the Hokudan Earthquake Memorial Park, and banquet on the penultimate night of the conference.

Publications

Peer reviewed conference papers will be published in a special issue of the journal *Key Engineering Materials* in 2009.

Future conferences

The agreed co-chairmen for the planned 4th International Conference on Electrophoretic Deposition are: **Prof. A.R. Boccaccini** (London, UK), **Prof. O. Van der Biest** (Leuven, Belgium) and **Prof. R. Clasen** (Saarbrücken, Germany) and **Prof. J. H. Dickerson** (Nashville, USA). The conference will be held in 2011 in a location to be named in North America.

A.R. Boccaccini

New on the Market

Machinery for Ceramic Pipe Sockets- and Chimney Pipe, Power Insulators and Much More

Schoenbeck GmbH & Co. KG, Nienstaedt, Germany, is located in Nienstaedt some 50 km NW from the city of Hanover, Germany. Since the company was established in 1999 the Schoenbeck Company has manufactured complete production lines as well as various handling assemblies for the Ceramic clay pipe industry. The vast "know how" is sourced from more than 35 years experience in engineering and manufacturing of specialised equipment and material handling equipment.

Integration and utilisation with "state of the art"

technology including automotive modules, robotic systems, and custom purpose engineered "grab handling" equipment, production processing attachments/tools for the ceramic industry are part of Schoenbeck's day to day business.

Schoenbeck offers a complete package which allows customers to receive consultation, construction, manufacturing, sales and service from one single source. Production lines and machines for vitrified ceramic clay pipe, chimney stack, stone brick, power insulator manufacturing and vacuum pipe handling equipment for the pipeline in-

dustrial are just some of the sectors where this expertise can be seen around the world.

Polyurethane seal casting (K-system) assembly for vitrified ceramic clay pipe was completed at the end of 2008 in Saudi Arabia.

To enable the casting of polyurethane seals for ceramic clay pipe ends (socket & spigot). The Schoenbeck Company designed and delivered two production assemblies in 2008 for two different pipe seal techniques. Both assemblies were successfully installed and are now fully operational in service. Both seal techniques vary in as



much as the socket end of a pipe for DN 200–400 is processed with a polyurethane foam-like seal and pipes for DN 400–1200 with a normal polyurethane cast.

Pipe size DN 200–400

The cast form is placed into the pipe socket end. Polyurethane foam is then injected into the form and sealed off by a capping plate. The foam then automatically expands and multiplies its original size and dosage.

Although slightly complex, this specialised technique reduces substantial costs when utilising the polyurethane substance. The seal for the spigot end of the pipe is filled into an open cast. Whereas the socket end is furnished with polyurethane “hardener” (compensating agent), the spigot pipe end is processed with a polyurethane isofter (seal element).

The processing of the polyurethane fluid containers at exactly 25 ± 2 °C, the exact dosage of the double component Polyol and Isocyanat as well as a complete and utter speed swirling of both substances prior to exiting the mixer, are absolutely necessary for a faultless a perfect production. To ensure that the “polyurethane foam” for pipe socket ends expands and multiplies faster, the assistance of dosage compressed air is used at the mixer stage of the process.

Prior to the pipes being transported into the “pipe carousel” for the polyurethane processing, they naturally need to be treated with a primer substance.

The Schoenbeck Company has developed a processing system which allows the adhesive agent to be sprayed onto the pipe during transportation exactly where it is required, at exactly the amount required. This system is also online and in production.

Production line

Chain transportation conveyor, primer assembly station, pipe loading lifter equipment, carousel for seal possessing, polyurethane preparation assembly (double component mixer), pipe “off” loader crane, pipe packing crane.

Pipe size DN 400–1200

This plant and production technique differs in comparison to the previously mentioned as follows:

Pipe socket casting technique

The socket as in the pipe spigot ends are open system types and are filled with normal polyurethane, which basically means that the capping of the socket is not required.

Handling

Naturally the furnishing of all equipment for transportation, lifting and processing is calculated for high stability when handling pipe weights of approx. 1700 kp.

Production line

Chain transportation conveyors, Primer assembly station, pipe pivot/lifter, pipe loader lifter equipment, carousel for seal possessing, polyurethane preparation assembly (double component mixer), pipe “off” loader cranes, pipe pivot/lifter, pipe packing crane.

The most favourable temperature for the pipes and forms when processing the seals lies between 25...30 °C, this allows the pipe with new sealing to be “damage free” off loaded after 7 to 10 min.

