



WORKSHOPS 2009

June 11-12



WS 12: Coated Glass - Applications and Markets

Presenter: Steven Nadel, Applied Materials



Course Summary

Sputter coating of glass continues to play the premier role in adding value to glass through advanced coatings. This course will cover the details of process technology, coating design and performance, coating production and quality control. In addition to the traditional arenas of low-emissivity and solar control glazing, the course will cover sputter coating requirements for new growth markets such as transparent conductor and other coatings for electrochromic and photovoltaic applications

Applied Materials is the world leader in production equipment for vacuum deposition of coatings, with over 30 years experience in large area coating of glass. The book "Coated Glass – Applications and Markets" based on this short course will be distributed to attendees, along with updated class notes.

Bullet Point Summary

1. Introduction to Glass Coating
2. Fundamentals of Vacuum and Sputtering
 - Planar & Rotatable Magnetron Sputtering
3. Coating System Design
 - Flat Glass & Automotive Glass Coaters
4. Coated Glass - Key Performance Factors & Standards
5. Coated Glass - Products, Applications and Performance
 - Architectural , Low-E Glass & Automotive Glass
 - Photovoltaic, Transparent Conductors
6. Coated Glass Processing - New Developments in Productivity and Performance
 - Integrated systems for Mid Frequency AC Sputtering
 - Enhanced Rate processes
 - Heat treatable coatings
7. Coated Glass Markets - Development and Trends
 - Solar Control & Low-E Growth in US, Europe and Asia
 - Automotive coatings market

Course timetable - Friday 12.6.2009

- 9.00 Introduction
- 9.30 Fundamentals of vacuum and sputtering
- 10.00 Coffee/tea
- 10.20 Coating system design
- 11.15 Coatings: Key performance factors
- 12.00 Lunch
- 13.30 Coated glass: Products and applications
- 14.45 Coffee/tea
- 15.00 Coating processes: New developments
- 16.00 Coated glass market trends

WORKSHOP LOCATION:
UNIVERSITY OF TAMPERE, PINNI B
KANSLERINRINNE 1

Registration for Workshops at www.gpd.fi





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THURSDAY 11 June

Structural Properties of Laminated Glass

Presenters: S. J. Bennison & I. Stelzer,
E.I. DuPont de Nemours & Co. Inc

Milestones to better understand the Flat Glass Business (history - today - tomorrow)

Presenter: B. Savaëte, BJS. Différences

Industrial Glass Coating Technologies and systems powered by nanotechnology (Beneq)

Presenter: M. Saikkonen, Beneq Oy

Glass Tempering Process (level1): Fundamental steps in tempering and machine test runs

Presenters: V-J. Kuusiniemi & T. Pesonen & M. Äppelqvist & S. Suominen, Glaston Finland Oy

Glass Bending & Tempering process: Theory and machine test runs

Presenters: V-J. Kuusiniemi & T. Pesonen & M. Äppelqvist & S. Suominen, Glaston Finland Oy

Laminating of Heat treated and other speciality glass

Presenters: M.P. Verleyen, Solutia Europe; M. Rantanen & J. Ala-Savikola, Glaston Finland Oy; R. Giovannini, Glaston Italy; A. Uusikartano, Suomen Turvalasi Tambest; C. Bostick, Consulting Architects; J. Gilleeney, Independent Glass

Glass processing basics for Solar industry specialists

Presenters: R. Nieminen, Glaston America Inc.; I. Hiekkänen & T. Pesonen, Glaston Finland Oy

Understanding glass strength, stress analysis and design methodologies for architectural glass

Presenter: Dr. L. Jacob, Jacob & Associates Pty Ltd.

FRIDAY 12 June

Cutting, Grinding, Washing: Three fundamental steps in Float Glass Processing

Presenters: P. Pokoern, Bohle AG; M. Emonds, ACW

Coated Glass - Applications and markets

Presenter: S. Nadel, Applied Materials

Seeing Through Glass Design

Presenter: C. Bostick, Consulting Architects

Basics of Glass Coating Processes and Coated Glass

Presenters: P. Vuoristo & T. Mäntylä,
Tampere University of Technology

Digital Printing on Glass

Presenters: Y. Ninyo & T. Salenius, DIP Tech Ltd.

Glass Tempering Process (level2): Glass Factory profitability and tempering technology know-how

Presenters: V-J. Kuusiniemi & T. Pesonen & M. Äppelqvist, Glaston Finland Oy; F. Serruys, Saint-Gobain Glass Solutions

Profitability of a Glass Processing Factory

Presenter: K. Heikkilä, Glaston Singapore

Solar Power - Opportunities for the glass industry

Presenters: R. Nieminen, Glaston America Inc.; I. Hiekkänen, Glaston Finland Oy; M. Rajala, Beneq Oy; A. Karpinski, Kuraray Europe GmbH; O. Mal, AGC Flat Glass; B. Szyszka, Fraunhofer IST; S. Byers, Ritec International Ltd.; V. Geyer, Scheuten Solar; G. Stry-Hipp, BSW Solar

New trends in the Infrared Non-contact Temperature Measurement for the glass industries

Presenters: R. Gärtner & E. Drews, Raytek GmbH

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