

International Conference on Polymers & Additives Technology

**Polymers
& Additives
Asia 2011**

28-29 March 2011
Century Park Hotel, Bangkok, Thailand

Training Programs (Post-Conference Events)

Color Science & Coloring of Plastics

30-31 March 2011, Century Park Hotel, Bangkok, Thailand

Polymer Drying - Fundamentals

30 March 2011, Century Park Hotel, Bangkok, Thailand (1.30 pm to 05.00 pm)

Barrier Film Extrusion (PVdC, EVOH and/or Nylon)

31 March 2011, Century Park Hotel, Bangkok, Thailand (09.00 am to 12.30 pm)

Event Language: ENGLISH

Organized by



Plastic Industry Academy @ TechnoBiz
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Program Agenda

28-29 March 2011

Century Park Hotel, Bangkok, Thailand

**Polymers
& Additives
Asia 2011**

28 March 2011 (Monday)

08.15 - 09.15 Participants Registration

09.15 - 09.30 Welcome Remarks

Session: Polymers & Processing

09.30 - 10.00 **Nano-scale Structuring and Densification of Melt in Rotomolding of Polyethylene (PE) Powders**

Dr. Oleg Kulikov

University of the Federal Armed Forces in Munich (UniBwM), Germany

10.00 - 10.30 **Recent Developments in Polyolefin Stabilization**

Dr. Hayder Zahalka, Technology Manager

Chemtura Global Technology, USA

10.30 - 11.00 Coffee Break

11.00 - 11.30 **Process Control System for Drying of Polymers**

Jamie Jamison, General Manager (PET and Packaging)

Conair, USA

11.30 - 12.00 **Detectable Polymers: Metal detectable and UV detectable**

Dr. Kirsten Markgraf

TICONA GmbH, Germany

12.00 - 13.30 Lunch Break

Session: Polymers, Testing & Processing

13.30 - 14.00 **Polymer Degradation and Accelerated Testing Methods**

Richard Kish, Intl Business Manager,

Q-Lab Corporation, USA

14.00 - 14.30 **Barrier films/sheets containing PVdC, EVOH and/or Nylon; fabricated by different technologies such as Double Bubble, Blown, Cast and Extrusion Coating.**

Dr. Harinder Tamber, R & D Manager

Macro Engineering & Technology Inc., Canada

14.30 - 15.00 **Polystyrene for White Consumer Electronics Applications**

Dr. Hongliang HUANG, Technical Manager

Total Petrochemicals SEAsia, Singapore

15.00 - 15.45 Coffee Break

Session: Plastics Recycling Technology & Biodegradability

15.45 - 16.15 **How to make high value recycled plastics that meet EU Food-contact Regulations**

Dr. Edward Kosior, Managing Director

Nextek Ltd., UK

- 16.15 -16.45 **Oxo-biodegradable Technology and Hydro- biodegradable Technology - A Comparison**
Thomas Robinson, Director
Econverte Limited, UK
- 16.15 – 17.15 **Removable colour technologies for high value plastics recycling**
Dr. Edward Kosior, Managing Director
Nextek Ltd., UK
- 17.15 – 19.00 Cocktail Dinner

29 March 2011 (Tuesday)

Session: Processing Additives

- 09.00 – 10.00 **Black Pigmentation systems that can be recycled with Near Infra Red Detection systems**
Robert Dvorak , Technical Manager
Nextek Ltd., UK
- 09.30 -10.00 **Novel Slip and Anti block additives for Polyolefins**
Dr. Ravindra Limaye, Business Dev Manager
Fine Organics, India
- 10.00 -10.30 **Novel Flame Retardants for Electronics Applications**
Marshall D. Moore, Director, Technology and Advocacy,
Great Lakes Solutions, USA
- 10.30 -11.00 Coffee Break
- 11.00 -11.30 **New Developments in Halogen Free Flame Retardants**
Dr. Reiner Sauerwein, General Manager BU Additives
Nabaltec AG, Germany
- 1130 -12.00 **Fluorine-Free Processing Additives for Extrusion of Polyolefin Resins**
Dr. Oleg Kulikov,
University of the Federal Armed Forces in Munich (UniBwM), Germany
- 12.00 - 12.30 **Optical effects of additives on plastics**
Jack A. Ladson, President
Color Science Consultancy, Inc, USA
- 12.30 - 13.30 Lunch Break

Session: Advances in Polymers

- 13.30 - 14.00 **Hostaform® HS15: Polyacetal Copolymer with Enhanced Mechanical Performance**
Dr. Oliver Jünger
Ticona GmbH, Germany
- 14.30 - 15.00 **Flexible Pelletizing Systems for Highly Filled Polymers**
Raymond Wong, Managing Director,
Maxtech Machinery, Malaysia
- 15.00 - 15.30 Coffee Break
- 15.30 - 17.00 Panel Discussion
“Technical Challenges of Polymers and Additives in Plastics Processing”

Training Program
Color Science and Coloring of Plastics
30-31 March 2011, Century Park Hotel, Bangkok

Program Outline

1. The Introduction to Color Science: An overview of the differences between color and color appearance, and answers the question; “How one communicate about color?” Things are not always as they appear. A visual, hands-on experiment is included in this section. **2. Color Vision:** An overview of the human visual system and psychophysical phenomenon’s as they apply to object color. The topics include: the triads of color vision – light, objects, and the eye; color order systems; and the standard observers. A visual, hands-on experiment is included in this section. **3. Objects Interaction with light:** An overview including the mathematics of how objects interact with light - transmitted, reflected, complex reflection, specular reflection, and first surface body reflection. **4. Color Order Systems:** An overview of color order systems based on psychophysical responses, physics, and systems based on perception; such as, Munsell, NCS, and Pantone. A lab session and a visual, hands-on experiment is included in this section. **5. Spectrometers:** Participants will acquire the background and skills required for successful color measurement in the laboratory and At-Line. Attendees will learn about the different types of instrumentation and modalities used to characterize color in the plastics industry. This section provides recommendations on how to properly measure specimens, and use of statistics. **6. Spectral Curves:** This section shows how to resolve your root color problems by visually examining spectral curves. **7. Tristimulus Calculations & Color Difference Equations:** Starting with the fundamental spectral data acquired from spectrometers we will review the mathematics (linear algebra) to calculate (transform) our way through tristimulus values such as CIEXYZ, CIEYxy, CIELAB, and CIELCH. Color difference equations; such as DL^* , Da^* , & Db^* and many total color difference equations, DE ’s, are also reviewed. A worksheet exercise is included. **8. Metamerism:** The section illustrates and teaches the differences between the three types of metamerism; object, light, and observer. Additionally the concept of color inconstancy and paramerism will be taught. **9. Colorants - Inorganic & Organic:** This section is designed to teach the differences between Inorganic, Organic, Dyes and special effect colorants. Additionally the future direction of Inorganic, Organic, and Dyes will be reviewed. We will review the “failure” mechanisms in coloring, the influences of additives on color, manufacturing with color concentrates, and mixing and dispersion issues. **Computer Color Matching & Batch Correction:** This section is designed to teach the differences between visual and computer color matching and batch correction-their advantages and limitations. We will review the theory and mathematics of Kubelka-Munk theory and Beers Law. This section also covers desaturants, and 3 band theory, and how to select colorants.

Program Instructor: *Jack Ladson, Color Science Consultancy Inc., USA*



Jack Ladson is a principle in Color Science Consultancy. His company supplies solutions throughout the color supply chain. For twenty-five years Ladson has worked in the field of color appearance technology. His current interests are in digital color technology, digital imaging, spectrometry, colorimetry, and global color control. He is the principle author of four standards. He is actively involved in the committee on the Color Ordering Systems, Color Rendering and Visual Methods. He is a representative on Optical Properties of Plastics to the International Standards Organization (ISO).

Training Program
Polymer Drying Fundamentals
30 March 2011, Century Park Hotel, Bangkok
(1.30 pm to 05.00 pm)

Program Outline

1. Types of Resin: Non-hygroscopic (Examples, How to dry), Non-hygroscopic (engineering grade resins) (Examples / How to dry / Problems when not dried properly); **2. The four fundamentals drying parameters / The principles of drying :** Drying temperature, Drying time, Airflow, Dew point; **3. Drying system troubleshooting :** Temperature related issues, Time related issues, Airflow related issues, Dew point related issues; **4. How a desiccant dryer works :** Process air circuit, Regeneration air circuit, Cooling air circuit; **5. Types of desiccant dryers:** Twin tower/dual bed dryers, Indexing style, Wheel/rotor type, Desiccant beads vs. rotary wheel, Causes of desiccant failure, Advantages / disadvantages; **6. Drying hopper considerations:** Mass flow, Funnel flow, Insulated vs. un-insulated; **7. Moisture analysis:** Loss in weight, Karl Fischer titration method, Moisture regain considerations, Indirect measurement, Dew point sensor(s), Drying Monitor, Smart controls; **8. Energy & resin saving ideas :** Dew point control, Smart dryers, Insulation, Temperature setback, Drying Monitor, **9. Desiccant dryers – installation considerations;** **10. Bioplastics**

Program Instructor: Jamie Jamison, General Manager, PET and Packaging, Conair



As General Manager, PET and Packaging, Jamie Jamison heads a multi-disciplinary team that is tasked with providing PET processors around the world with products and services to meet their unique requirements. He joined Conair in 1992 and, before assuming his current responsibilities, Jamison held a variety of progressively more responsible positions in product/project engineering, sales and product management. He is an Army veteran and earned a BS in Business Administration at Point Park College, Pittsburgh.

Training Program
Barrier Film Extrusion (PVdC, EVOH and/or Nylon)
31 March 2011, Century Park Hotel, Bangkok
(9.00am to 12.30pm)

In this program multilayer blown, cast, double bubble, thermal lamination and extrusion coating technologies will be presented. We will discuss different barrier film/sheet structures comprises of PVdC, EVOH and/or nylon, coextruded with LLDPE, mLLDPE, HDPE, PP, cPP, PETG, plastomers and adhesive resins. Detailed equipment configuration of each technology with specific discussion to extruders (grooved fed & smooth bore), multilayer blown dies (conventional and stackable), auto profile system (air ring and dies) and different winding systems (surface and turret) will be presented. For flat dies, we will discuss advantages of edge encapsulation, barrier layer encapsulation and concepts on micro-layer technology. Barrier films or sheets are used in food, medical, agricultural and chemical packaging applications, specific examples of film/sheet produced from each technology to an end application will be provided, such as 5 or 7-layer blown film for vacuum and milk packaging, 7 or 9-layer cast sheet for thermoforming. 5 or 7-layer barrier shrink film for fresh red meat and cheese packaging.

Program Outline:

1. Introduction to Barrier Film Extrusion: An overview of barrier and conventional resins and requirements of barrier multilayer film/sheet. Comparison of oxygen, moisture and aroma barrier of different polymer materials.; **2. Equipments for making Multilayer Barrier Film/Sheet:** Blown Film, Cast Film/Sheet, Double bubble, Thermal

Lamination and Extrusion Coating technologies; **3. Multilayer Blown (upward) Extrusion:** Configuration of complete blown line. Discussion on various components of the line such as, grooved and smooth bore extruders, water and air –cooled extruders, multilayer dies (conventional and stackable), Auto Profile System (Air ring or Dies). Different gauge measurement & control systems (Capacitance, Gamma Back scatter and Infra red). Horizontal and Vertical oscillating nip, edge guide, Surface and Turret winder. Specific applications of multilayer blown film.; **4. Multilayer Blown (Downward) Extrusion:** Configuration of downward blown line. Comparison of film properties of water cooled and air cooled processes. Applications of this technology in producing high clarity films. **5. Double Bubble:** Layout of the equipment. Barrier polymer resins for this technology (PVdC or EVOH). Comparison of water bath and Infra Red heating. Properties of Barrier shrink film.; **6. Multilayer Cast Line:** Cast technology (feed-block and die), edge encapsulation, barrier layer encapsulation and micro-layer technology. Thickness control by X-ray and Beta gauging systems. Applications of this technology in thermoforming applications for food and medical packaging; **7. Thermal lamination:** Thermal lamination of barrier co-ex film (melt) with BOPP, BOPET, Paper for flexible film application and with PVC & PP for sheet application. Merits and Demerits of the process; **8. Extrusion Coating:** Extrusion coating of PVdC (single layer) on to rigid PVC, PP and APET for medical blister packaging applications. Comparison of latex vs. extrusion coating technology.

**Program Instructor: Dr. Harinder Tamber, Research & Development Manager
Macro Engineering & Technology Inc., Canada**



Harinder Tamber has 23 years of experience in polymer processing pertaining to multilayer blown, cast, double bubble, thermal/adhesive lamination and extrusion coating technologies. He has 6 US patents (4 awarded and 2 pending) and authored two chapters in TAPPI Film Extrusion Manual. He has presented several technical papers in various 'Polymer Film Conferences' in USA, Canada, Argentina, Switzerland, Germany and India. He is a member of SPE and ACS professional organizations. He represents Macro at CPIA (Canadian Plastic Industry Association), CME (Canadian Manufacturers and Exporters) and CanSIA (Canadian Solar Industry Association). He received his M.Tech from I.I. T Delhi in Polymer Technology and PhD (Polymer Science) from Polymer Research Institute, State University of New York at Syracuse New York.

Event Organizer - Plastic Industry Academy @ TechnoBiz



Plastic Industry Academy (P.I.A) is a division of TechnoBiz Communications Co., Ltd. This academy is educational and knowledge-based platform for plastic processing industries. It organizes technical training programs, conferences and publishes and markets technical books on plastics technology. Please visit www.plasticindustry-academy.com for more information and updates on this academy.

Please contact

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Registration form – Polymers & Additives Events

We confirm to register following training programs (please select appropriately)

	Event	Date	Registration Fee/Participant, US\$
<input type="checkbox"/>	Polymers & Additives Asia 2011 - Conference	28-29 March '11	500 US\$
<input type="checkbox"/>	Color Science & Coloring of Plastics - Training	30-31 March '11	800 US\$
<input type="checkbox"/>	Polymer Drying – Fundamentals - Training	30 March '11	250 US\$
<input type="checkbox"/>	Barrier Film Extrusion - Training	31 March '11	300 US\$

Organization Name

Address

TelFax Email

Contact Person Tel Email

Participant Names :

Participant 1: Position Email

Participant 2: Position Email

Participant 3: Position Email

*Payment is required with registration. **Group Discount:** 3 or more than 3 delegates from the same organization for the same event, 10% discount on the registration fee will be offered. If 5 delegates from the same organization for the same event, 6th person participation is FREE.*

Payment Method

Bank Transfer to Bangkok Bank, Ratchada-Latphrao Road Branch, A/C No: 177-0-70727-9
 A/C Name: TechnoBiz Communications Co., Ltd., Swift Code: BKKBTHBK
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