

More than 420 attend Polymers, Laminations and Coatings Division annual conference

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The technical program for the 1992 Polymers, Laminations and Coatings Division Conference emphasized extrusion coating and film extrusion with more than half of the technical sessions devoted to these topics. The conference, held Sept. 8–11 in Orlando, FL, included technical sessions on packaging and recycling, as well as a trade fair with more than 25 exhibitors.

Technical program

Edward Steward of Crompton & Knowles Corp. presented a paper on "Screw design for efficient PVDC & EVOH recycle extrusion." Another paper on screw design was the collaborative effort by personnel from Black Clawson Co. and Dow Chemical Co. entitled "Screw design evaluations for extrusion coating polymers."

In "Utilization of designed experimentation techniques to determine ultimate extruder performance," Jim Cooper and Russ Cramm of Dow Chemical Co. showed that designed experimentation allows the determination of those variables which significantly influence extrusion rates, extruder motor amps, maximum polymer temperatures, and delta temperature for polymer melt flow. They further identified and quantitatively recorded the first, second, and quadratic terms for their laboratory extrusion coater.

Five papers in the session were devoted to selected papers from the SPE ANTEC meeting. The topics were "Effects of cast film fabrication variables on key stretch film properties," "Improving the output and bubble stability of thick gauge blown film," "Polypropylene performance in thermo-form-fill-and-seal applications," "Mineral reinforcement of linear-low density polyethylene film, bags and liners," and "Sharkskin melt fracture: effect on LLDPE film properties."

Gels fall into four categories, according to Todd Obijeski and Darryl Dixon in "Characterization of gels in polyethylene film." They offer a method for characterizing these gels, identifying their typical sources, and preventing their formation.

Mark Wendorf reported that post-consumer HDPE resin in LLDPE gave a significant loss in machine direction tear strength

and impact strength, and in LDPE did not significantly reduce the machine direction tear strength until added at a level of 35%. He presented these and other conclusions in "Post-consumer recycled resins in film applications."

"Oxygen transport through polyamides at different temperature and humidity conditions" was the title of the paper by Ruben Hernandez of Michigan State University and Kuniyoshi Ohashi of Suntory Ltd., in which they reported on their continuing study to describe and understand the transport behavior of oxygen and water vapor in polyamides.

"Safety in extrusion coating design" by Louis Piffer of Egan Machinery Division, and "Factors affecting the surface friction of extrusion coated products" by Erkki Laiho, were two papers in the session on Considerations in Extrusion Coating. In this session Peter Sherman *et al.* of Sherman Treaters presented ozone destruction units which offer prevention of atmospheric pollution. There was also a presentation by Bill Scannell of Roll Service Inc. on heat transfer analysis for users of chill rolls with a particular emphasis on chromium plating and finishes.

Jeff Siegel, Mica Corp., chaired a session entitled "Troubleshooting for extrusion coating." In keeping with the location of the conference near Disney World, he opened this panel discussion by offering a Mickey Mouse T-shirt to anyone who could pose a question which would stump the panel. Members Fred Singer, Mica Corp.; Tom Mueller, Alusuisse Flexible Packaging, Inc.; Dick Sylvester, Quantum Chemical Corp.; Scott Marks, E.I. du Pont de Nemours & Co.; and Mike Ferrante, Klockner Er-We-Pa USA, Inc. answered all questions, however. These ranged from queries on marketing to those covering complex technical issues.

One response indicated that the Asians are intensifying the effort in the coextrusion area. They have different equipment in some cases than would be used in the United States. In answer to a question on the geometries and surfaces of nip or chill rolls, the point was made that durometer hardness is no longer the only important parameter. Ozone resistance, release, heat removal, and similar characteristics are necessary to get the "proper footprint" in a nip roll. In addition, down gauging requires a smaller

Conference Report

(Left to right): **Rhonda R. Nichols**, **James H. Glover**, **Alan M. Davis**, and **Paul H. Munford** are four of nine committee chairmen who received Certificates of Appreciation.



Robert B. Gregory, at left, accepts the honorarium for the Samuel Zweig Prize from **Philip L. Weyna** of Morton International, Inc.



footprint. When asked about the effects of ink adhesion in the design of the extrusion process, the panel noted the necessity of using a heat-resistant, laminating-grade ink to prevent ink adhesion problems.

The panel members felt that the future looks promising for silica coated films to replace foil and PVDC coated films as barrier materials in a construction. The silica is of great interest because it is an inorganic material which is inert, transparent, microwaveable, water resistant, retortable, and solvent resistant. There was also a discussion about the use of ozone treatment for enhanced adhesion and the need to be aware of corrosion concerns with this technique.

Finally, the panel stated the requirement for "tender loving care" when running internally deckled dies and the fact that SPC is expected by almost all end-use customers.

Other topics of discussion at the Polymers, Laminations and Coatings Division Conference included microwave packaging, environmental/recycling issues, adhesives and flexible packaging,

The Division honored **Stephanie Ingram** with the Ralph A. Klucken Scholarship. TAPPI President's Representative **David J. Bentley Jr.** presented the award.



Ronald B. Schultz, at left, receives the honorarium for the Andreas G. Alhbrandt Prize from **Dave Markgraf** of Enercon Industries.



and medical packaging. In the session devoted to microwave packaging Steve Wu of 3M/Packaging Systems Division spoke on the use of a copolyester resin to make a microwave susceptor film. Because of its low extractables at high temperature, this film is a potential candidate for numerous high-temperature packaging applications in addition to its use in microwave susceptor applications. Alan Chiang of Keyes Fibre Co. discussed a fiber base tray that is molded from bleached chemical fiber recovered from recycled materials, which is an environmentally responsible packaging option for the single-serving frozen entree/dinner industry.

Recycling was an issue of concern in many of the sessions at the conference. One session was entitled "Environmental/Recycling forum." Topics ranged from "Fuel from nonrecyclable paper" by Leo Mulcahy of Westvaco Corp. to "Recycling: problems and solutions European approach" by Dragon Djordjevic of Klockner Er-We-Pa. Included in this session was a paper, "Overview of biodegradable polymers and solid waste issues," by Bill



Technical Program Chairman **Thomas Bezigian**



James K. Simcox, president-general manager, Black Clawson Co. Converting Machinery Division, delivered the Awards Luncheon keynote address.



Van Volkenburgh and Marvin White of Dow Chemical Co., in which they reviewed the solid waste issue and the best available procedures to determine its potential effect on the environment and its actual ability to degrade within a reasonable time period in a given waste environment.

Ian Davie of IGI International Waxes Division spoke on two studies concerning "Compostability of petroleum wax based coatings." He indicated that compost quality was mainly constrained by contaminants from the packaging material. Properly formulated waxed packaging, however, does produce a high-quality compost.

A second panel discussion at the conference, under the direction of Dave Markgraf, Enercon Industries Corp., followed a format where each panelist gave a brief presentation covering some aspect of aqueous printing technology.

Mike Reddy, Paper Converting Machinery Corp., offered an overview of the press requirements when converting from solvent to aqueous inks. Mike McPherron of Praxair Technology spoke

on ink metering with an anilox roll for flexographic printing, and Terry Clarke of Mobil Chemical Co. talked about printing with water-borne inks on polymer film surfaces with an emphasis on oriented polypropylene. This latter offering included a comparison of the wet out and adhesion characteristics of one ink on a variety of oriented polypropylene films in an experiment conducted specifically for this presentation. The conclusion was that wet out is different than adhesion.

In the session devoted to adhesives and flexible packaging, Bruce Foster showed how dynamic mechanical analysis provides a quick, reliable method for estimating the molecular weight, polydispersity, and flow-rate of polypropylenes. The session focusing on medical packaging featured talks by Ron Pilchik, The Techmark Group, on "International standardization of the medical packaging industry," and by Anna Placencia of the FDA on "Proposed standards for evaluating medical device packaging materials using microbial methods: an update."

Conference Report

Division awards

The efforts and achievements of many were acknowledged at the Awards Luncheon. Present to receive Certificates of Appreciation were Chairman Alan M. Davis, Midwestern Packaging and Converting Committee (1991–1992); Chairman James H. Glover, Extrusion Coating Committee (1991–1992); Chairman Paul H. Munford, Microwaveable Packaging Committee Co-Chairman (1991–1992); and Chairwoman Rhonda R. Nichols, Plastic Laminates Ad Hoc Committee (1990–1992). Division Chairman M. Bruce Lyne accepted a Certificate of Appreciation for a year of leadership.

Committee leaders who received Certificates of Appreciation include: Chairman Alex Gonsalves, Hot Melt (1990–1992); Chairman Paul Lund, High Barrier Packaging (1990–1992); Chairwoman Georgia C. Mohr, Flexible Packaging (1990–1992); Chairman Edward S. Vargas, Film Extrusion (1991–1992); and Co-Chairwoman Alicia D. Cramer, Microwaveable Packaging (1991–1992).

The Division also recognized outstanding authors from the 1991 Polymers, Laminations, and Coatings Division Conference. Recipients of the 1991 Best Paper Awards were: **Anshyang A. Lin**, "Prediction of adhesive performances by their dynamic mechanical behaviors"; **David J. Zimmer** and **Judith S. Morphy**, "Pigmented adhesives for flexible packaging laminating"; **W.J. Schrenk**, **R.A. Lewis**, **J.A. Wheatley**, and **C.B. Arends**, "Nanolayer polymeric optical films"; **Thomas Bezigian**, "The effect of corona discharge onto polymer films"; **R.C. Mason**, **P.T. DeLassus**, **G. Strandburg**, and **B.A. Howell**, "Diffusion of flavors in polymers: effect of permeant size and shape"; **Bruce W. Foster** and **Alicia E. Barrett**, "Characterizing hot-tack differences in hot

melt adhesives using DMTA"; **Richard G. Ryder**, "Presenting the facts about rigid vinyl and the environment"; **M.A. Adams** and **E.J. Machuga**, "FDA perspectives on microwaveable packaging materials and food/packaging interactions"; **Gordon L. Swenson**, "Improvements in laminating through a process improvement program"; and **M.W. Potts**, **S.L. Baker**, and **M.M. Hughes**, "Impact of volatiles upon a polymer's sensory characteristics and performance properties."

Frances M. Hammond accepted the 1991 Best Technical Session Award as session chairman for the "Extrusion Coating Resin Performance" session sponsored by the Extrusion Coating Committee.

The Division also presented **Stephanie Ingram**, a student studying pulp and paper technology at the University of Washington, with the Ralph A. Klucken Scholarship. The US\$ 1000 scholarship is for the 1992–1993 school year.

Two long-time TAPPI members received the Division's highest honors. **Robert B. Gregory** accepted the 1992 TAPPI Polymers, Laminations and Coatings Division Technical Award and the Samuel Zweig Prize, which carries a US\$ 1000 honorarium made possible by a gift to TAPPI from Morton International. **Ronald B. Schultz** received the 1992 TAPPI Polymers, Laminations and Coatings Division Leadership and Service Award and the Andreas G. Alhbrandt Prize, which carries a US\$ 1000 honorarium made possible by a gift to TAPPI from Enercon Industries.

Following the awards presentation, **James K. Simcox**, president-general manager, Black Clawson Co.'s Converting Machinery Division, gave the luncheon's keynote address, "What does excellence really mean in today's business environment?" ■