European Conference (Cont.)

tunities for networking among the registrants and presenters. I encourage people to come with specific questions to ask their fellow attendees and the speakers during meeting breaks, lunches, etc."

Information about the TAPPI 9th European PLACE Conference is available on the Internet at www.tappi.org/index.asp?rc=1&pid=24395&ch=4&ip=-1. For specific details, contact Kathy Betts, the Technical Program Planner, at TAPPI by telephone at +1-770-209-7418 or by email at kbetts@tappi.org.

2003 Conference Features Panel Of Converters (Cont.)

- Martin Gilvarg, Pechiney Plastic Packaging
- Ezra Bowen, Lawson Mardon-Alcan Packaging
- Greg Garde, Pliant Corporation

"From my discussions with these people," Wolf said, "I know that they are approaching the session as an important learning opportunity. They want to educate their suppliers about their needs and the best ways to help converters. The converters also want to learn from the suppliers in the audience how they can improve the relationships with them."

The 2003 TAPPI PLACE Conference and GLOBAL HOT MELT Symposium will be August 3–7, 2003, at the Rosen Centre Hotel in Orlando, Florida. Besides the Converter Spotlight, it will offer numerous sessions featuring technical presentations and panel discussions covering all aspects of the converting and packaging industries. A highlight of the meeting will be the inclusion of the GLOBAL HOT MELT Symposium offering papers on coating, use, testing, and related areas concerning hot melt applications. Additional information about the meeting is available from the TAPPI web site at www.tappi.org or from the TAPPI Member Connection Center by telephoning 1-800-332-8686 in the United States, 1-800-446-9431 in Canada, or +1-770-446-1400 in other areas.

PEER-REVIEWED TECHNICAL PAPER: Following is an expanded summary of a complete paper that is available on the TAPPI web site at www.TAPPI.org. On the page, click "the PLACE" in the section designated Journals.

Predicting The Performance Of Ionomer Films In Heat-Seal Processes

by Barry A. Morris
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Application: Laboratory data can predict the sealing performance of ionomers on high-speed packaging lines.

Flexible plastic packaging films find use in many food applications for their ability to provide a hermetic seal, protect the product against the environment, safeguard flavor, run in high speed filling processes, and provide advertising space at low cost. These films typically are formed into pouches by fusing the polymers together by applying a hot bar. Low melting polymers such as polyethylene, ethylene vinyl acetate (EVA), acid copolymers, and ionomers usually find use as the sealing layer. Of these, ionomers are particularly suitable for sealant applications. Ionomers are copolymers of ethylene and methacrylic acid partially neutralized with sodium or zinc cations. The metal salts form ionic cross-links with the acid groups on the polymer chains to give the polymer a unique combination of properties. These include low temperature sealability, hot tack over a broad temperature range, optical clarity, oil resistance, toughness, and stiffness that make them the standard-bearers of the packaging industry.

In the heat-seal process, two films join together. The seal bars apply heat and pressure from the outside for a predetermined time, the dwell time. Initially, the bond strength is poor. As the film surfaces begin to melt, more intimate contact and wetting of the surfaces occurs. With time, the seal strength increases as molecular segments diffuse across the interface forming entanglements. After release of the heat-seal bars, the sealed film slowly cools to room temperature. As long as the polymer is above its freezing point, the molecular segments are free to continue diffusing although the rate of diffusion decreases markedly as the temperature decreases.

Presumably, heat-seal strength relates directly to the penetration distance of chain-segment diffusion across the seal interface. Relating penetration distance to the seal strength of one structure at the plateau initiation temperature should allow computation of the plateau initiation temperature for any other structure from heat-transfer modeling. This work shows the development of a model to do this and tests it with ionomers. The work begins by computing the temperature at the interface and then developing a model for molecular penetration.