



STEVEN P. OTTONE
TAPPI Journal Editorial Board

The road to sustainable packaging: New research on aqueous barrier coating

This *TAPPI Journal* Special Coating Issue looks at hot topic research being done in coatings for paper and paperboard. We can feel the “earth shifting” in paper and paperboard packaging due to the strong call by consumers and brand owners for more sustainable and environmentally friendly options. This is the first *TAPPI Journal* Special Coating Issue to highlight efforts within the paper coating community to produce more sustainable packaging.

In this issue, there are five research papers to explore on the barrier coating topic. Four of these papers were originally presented at TAPPICon 2022 and were well received there. They were chosen for peer review and publication in *TAPPI Journal* by myself, Jim Niemiec, and Gregg Reed, as members of the Editorial Board and TAPPI's Coating and Graphic Arts (CGA) Division.

The last four papers described here were those presented at PaperCon, while the first paper listed below offers a comprehensive review of work done across the industry to study the sources of fold cracking in aqueous barrier coatings.

- From researchers at WestRock, this paper (p. 589) describes how published literature on coating cracking is useful, but is still limited in terms of what is directly beneficial for commercial applications. This review emphasizes the value in taking time to properly understand the relevant literature and distinguish what is valid, where gaps exist, and what effective paths can close these gaps. Its content can be used to guide product development and fundamental research.
- A second paper (p. 605) from researchers at PaperCote, the University of Maine, and Trinseo discusses

modeling of application processes used for barrier coatings. It addresses the knowledge gap around rod loading of smooth rods to obtain various coat weights by employing a simplified mode to estimate the influence of process parameters like speed, rod diameter, viscosity, and rod loading on coat weight.

- The third manuscript (p. 617) from researchers at Dow discusses a specific waterborne barrier coating solution that was designed and tailored for sustainable paper-based flexible packaging applications. It performs well in terms of good liquid/gas barrier, high heat-seal/hot-tack, and low coefficient of friction (CoF).
- From researchers at Trinseo (p. 625), the fourth paper describes a complementary test to the 3M Kit, Hot Oil, and other tests for assessing water-based barrier coating defects. Called the Defect Characterization test, it offers additional accuracy in a short amount of time and with a small paper sample.
- The final paper from researchers at Dow (p. 645) reviews new oil and grease resistance (OGR) test methods for waterborne barrier coatings. It describes additional, more aggressive 3M Kit-type solutions that can be utilized immediately in mills with minimal modifications to their current workflow.

It has been our pleasure to be able to guide peer review and publish these fine works for your review. So, read, absorb, question, and use the ideas here to guide your own perspective and efforts within the sustainable packaging space. **TJ**

Steven P. Ottone is a technical service manager, Market Development and Innovation, for Omya, Inc., Cincinnati, OH, USA.