John G. Brace

Packaging-related PATENTS, PRESENTATIONS AND PUBLICATIONS - Chronological

Polyethylene Terephthalate (PET) Bottle-to-Bottle Recycling for the Beverage Industry: A Review, Benyathiar, P.; Kumar, P.; Carpenter, G.; Brace, J.; Mishra, D.K. *Polymers* 2022, 14, 2366.

"Just Enough of a Good Thing: Case Studies of Meeting Package Material Requirements in Food, Beverages, Supplements," presentation, 15th Annual Packaging Conference, Austin, February 2022.

Barrier system for wide mouth containers, U. S. Patent 9,707,732, July 18, 2017.

Oxygen scavenging system for a container, U. S. Patent 9,662,622, May 30, 2017.

Oxygen scavenging system for a container, U. S. Patent 9,108,176, August 18, 2015.

Container having an oxygen scavenging indication system, U.S. Patent 8,551,419, October 8, 2013.

Container having an oxygen scavenging activation system, U.S. Patent 8,524,157, September 3, 2013.

"Kinetics and Mechanisms of the Oxidation Processes for Unsaturated-Hydrocarbon-Modified Scavengers," H. Li and J. G. Brace, Polymer Institute Active Barrier Consortium, Toledo, October 2006.

"Diffusion and Oxidation in Scavenger Systems – Molecular Structure and Phases," seminar, Polymer Institute Active Barrier Consortium, Toledo, October 2006.

"Diffusion and Oxidation in Scavenger Model Systems: Experiment and Molecular Simulation," seminar, Polymer Institute Active Barrier Consortium, Toledo, April 2006.

"Approaches to Studying Active-Barrier (Scavenger) Process in Blowmolded Containers," seminar, Polymer Institute Active Barrier Consortium, Toledo, April 2006.

"Oxidation Reactions and Synthesis of New Active Barrier Polymers," seminar, Polymer Institute Active Barrier Consortium, Toledo, October 2005.

"Effect of Strain on Surface Conformations in Blowmolded PET," seminar, Polymer Institute PET Consortium, Toledo, October 2005.

"Chemistry of the Active Barrier as it Relates to Oxidation Reactions and By-products," seminar, Polymer Institute Active Barrier Consortium, Toledo, April 2005.

"Polymer Orientation and Mapping by Prism-Coupler Techniques IV. Barrier Polymers and Multilayer Structures," seminar, Polymer Institute PET Consortium, Toledo, April 2005.

"Polymer Orientation and Mapping by Prism-Coupler Techniques III. Monolayer, Blend and Coated Containers," seminar, Polymer Institute PET Consortium, Toledo, October 2004.

"Chemistry, Reactions and Transport in Active Packaging," seminar, Polymer Institute PET Consortium, Toledo, October 2004.

"New Spectroscopic Technique for Blend Composition," seminar, Polymer Institute PET Consortium, Toledo, October 2004.

"Composition, Conformations and Orientation of Structural and Barrier Materials (in Blowmolded Containers)," presentation, SPE Annual Blow Molding Conference 2004, Montréal, September 2004.

"Polymer Orientation Mapping by the Prism-Coupler Technique II. Structural and Barrier Materials," seminar, Polymer Institute PET Consortium, Toledo, April 2004.

"Polymer Orientation Mapping by the Prism-Coupler Technique," seminar, Polymer Institute PET Consortium, Toledo, October 2003.

"Separation of Microleakage and Permeation I. Commercial Closure Systems," seminar, Polymer Institute PET Consortium, Toledo, October 2003.

"Direct Spectroscopic Measurement of Small-Molecule Transport in Polymers I. CO_2, H_2O and Organic Vapors," seminar, Polymer Institute PET Consortium, Toledo, October 2003.

"Surface Properties of PET Films and Bottles II. An Overview of Barrier Enhancement and Relevant Surface/Interface Studies," seminar, Polymer Institute PET Consortium, Toledo, April 2003.

"Barrier Properties of High-T_g Coated Film Structures," seminar, College of Engineering, University of Toledo, October 2001.

"Aseptic and Hot Fill beverage processing in rigid containers: a product quality study," presentation, L. Mulholland and J. G. Brace, Nova-Pack Europe '98, Düsseldorf, October 1998.

Apparatus and method for noninvasive assessment of pressurized container properties, U. S. Patent 5,614,718, March 25, 1997.

Rapid estimation of the oxygen permeation rate of a thin film on a plastic container, U. S. Patent 5,381,228, January 10, 1995.

Carbon content of silicon oxide films deposited by room temperature plasma enhanced chemical vapor deposition of hexamethyldisiloxane and oxygen, J. A. Theil, J. G. Brace and R. W. Knoll, *J. Vac. Sci. Technol. A,* **12**(4), 1365 (1994).

"Spectroscopic Study of Composition/Property Correlations (in Thin Films)," seminar, Ecole Polytechnique, Montréal, March 1994.

"Simulation of Vibrational Spectra: Plasma-Deposited Thin Films," presentation, 39th National AVS Symposium, Chicago, November 1992.

"Simulation of Vibrational Spectra: Plasma-Deposited Thin Films," presentation, ACS Great Lakes Regional Meeting, Milwaukee, June 1992.

COURSES TAUGHT

CHEE 8830, Transport in Plastics, taught 2002, 2004, 2006. College of Engineering, University of Toledo. "A study of the transport properties of polymers including sorption and permeation of gases, vapors and liquids."

CHEE 8860, Polymer Laboratory Methods (contributing faculty), taught 2001, 2002, 2003, 2004, 2005. College of Engineering, University of Toledo. "Physical and instrumental methods for identifying, characterizing and testing polymers."