

# Permeation & Barrier Materials Learnshop

Wednesday 16th May 2018 - Heywood , Lancashire, UK

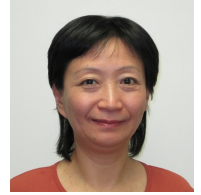
## Technical Programme

**Georgia Gu, Mocon - Ametek**

**Permeation and Its Applications** - Advanced discussion on permeation basics and how to apply basics to the real packaging case studies.

**Ultra-High Barriers WVTR Measurement by Absolute Coulometric Method** -

Why Coulometric sensor is absolute and provides the most sensitive and accurate WVTR measurement for ultra-high barrier materials



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**Dr Esra Kucukpinar, Fraunhofer Institute for Process Engineering and Packaging IVV**

**Gas & Water Vapor characterization of high barrier laminates for vacuum insulation panels** -

Fundamentals of gas and water vapor permeation mechanisms through high barrier laminates will be discussed to provide an understanding of the contributions and limitations of materials and processes.

A summary of the various permeation measurement techniques used for high barrier laminates produced for VIPs will be presented with recent results.



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**Dr Carolin Struller, BOBST**

Barrier solutions for added value packaging performance



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**Prof Hazel Assender, Department of Materials, University of Oxford**

**Temperature-dependent permeation measurements to probe water-vapour transport through barrier coating defects** - The WVTR of coated films depends on the coating's defect population. We have found that a significant proportion of the permeation can come through nano-scale defects, even where there is a population of macro-scale defects also present. The presentation will show how temperature-dependent permeation measurements can be used to determine the relative contributions of the different defect populations, thus pointing to options of improvement of barrier performance.



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**Dr Charles A. Bishop C.Eng, C.A.Bishop Consulting Ltd**

**Why it is difficult to vacuum deposit perfect barrier coatings** - Barrier coatings are affected by many factors prior to the web being vacuum coated. Substrates are generally contaminated, both by particulates as well as by low molecular weight chemicals on the surface. These can affect the coating adhesion as well as the pinhole density both affecting the barrier performance. This talk will highlight a number of these critical factors.



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**Prof Rahul Raveendran Nair, National Graphene Institute, University of Manchester**

**Permeation characteristics and applications of Graphene** - A single atom thick sheet of hexagonally arranged, bonded carbon atoms, adhered to a substrate. Graphene is a disruptive technology, one that could open new markets or replace existing technologies in membranes, packaging, composites and coatings, energy, bio-medical, sensors and electronics.



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**Roy Christopherson, Amcor**

**New barrier levels by combining wet chemistry with vacuum deposition technologies** -

Building on the developments in clear high barrier films produced by metal oxide coatings, these technologies are now being expanded by combination with novel wet chemistries to achieve a new level of barrier performance, expanding significantly their range of applications.



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**Todd Fayne, Pepsico**

Discussing permeation and barrier materials from the perspective of a brand owner.

