

For Immediate Release

PERMEABILITY LAB MEASURES BARRIER PROPERTIES IN PACKAGING APPLICATIONS

[Midland, MI] -- Manufacturers and packagers can optimize quality and extend the shelf life of sensitive food and non-food products through the extensive resources of the dedicated Barrier Properties Lab at Impact Analytical. With the capability for both gas- and vapor transmission testing in a temperature- and humidity-controlled environment, the facility can evaluate flat films as well flexible and non-flexible packaging.

“Thousands of new products are introduced each year with barrier packaging needs,” commented Rebecca Ortiz, Barrier Properties Lab Manager. “Migration of oxygen, moisture or carbon dioxide can have drastic effects on packaged goods, and permeation rates can be critical to product quality. Even non-food items such as chemicals, electronics, paints and coatings can have very stringent ‘freshness’ requirements,” she said.

Impact Analytical offers a number of techniques for measuring gas and vapor transmission, including the ability to conduct materials testing via Carbon Dioxide Transmission Rate (TR),

Oxygen TR and Water Vapor TR. All procedures are carried out in a controlled environment that eliminates the variability introduced by room temperature testing. “Fluctuations in the ambient conditions can cause noisy, unreliable data,” Ortiz explained. “In a strictly controlled test environment, we obtain more consistent and meaningful results.”

Carbon Dioxide Transmission Rate (CO₂ TR) testing can be performed on films, flexible and rigid packages, under a wide range of temperature and humidity conditions. “One side of the film is exposed to the CO₂ permeant,” explained Ortiz. “As it penetrates the sample, nitrogen sweeps the other side and transports the CO₂ molecules to a calibrated sensor. The response is reported as a transmission rate, and when multiplied by the average thickness of the material, the result is the permeability. Typical applications for this technique include carbonated beverages and fresh food storage,” she added.

Oxygen Transmission Rate (O₂ TR) testing can also be conducted on a range of materials, under varying temperature and humidity conditions. As with CO₂ testing, the permeant solubilizes into the film and permeates through the sample material, where it is swept by nitrogen. A coulometric sensor detects the transmission rate. “Common applications for O₂ permeability testing include pharmaceutical packaging, beverages, and fresh food storage,” Ortiz observed.

Water Vapor Transmission Rate (WVTR) testing can also be done on films, flexible and rigid packages, under a wide variety of environmental conditions. “In water vapor permeability testing, a calibrated infrared sensor is used to quantitate the water molecules that permeate a

sample,” continued Ortiz. “This method can be an important test in many different applications involving moisture-sensitive products, such as electronics, automotive, food, and beverage packaging.”

Barrier testing will be among the many techniques featured at NPE 2003, as Impact Analytical showcases its capabilities at the world’s largest plastics and elastomers trade show. With considerable resources in polymer science, the company will highlight its resident expertise in process engineering, packaging, and physical properties testing. Sponsored by the Society of the Plastics Industry (SPI), the triennial event will be held June 23-27 at McCormick Place in Chicago, the largest exposition facility in North America.

Since 1971, Impact Analytical has delivered extensive problem-solving capabilities, detailed analysis and method development to customers in manufacturing and processing. The company’s experienced technical staff provides characterization of unknown materials, permeability testing, competitive product analysis, impurity identification, investigation of product failures and supplier certification. The laboratory is registered under ISO 9001:2000.

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