

Permeation Testing

Package Shelf-Life Evaluation

The Opportunity

One of our customers faced unexpected quality issues with their packaged product, affecting its taste, color, and long-term shelf-life. However, their usual quality control tests did not highlight any deviations to their package performance specifications. The focus was redirected to the oxygen barrier performance of the package in order to identify where the issue of quality stemmed and where the oxygen ingress occurred and why.

The Innovation

PTI's Engineering and Laboratory teams collaborated to develop tailor-made mounting setups and oxygen barrier testing protocols to determine the different spatial contributions of the package (body, top lid membrane, sealing area) to the overall Oxygen Barrier Performance. PTI's permeation models and material barrier database were instrumental in completing this evaluation.

The Outcome

The top lid membrane, close to the rim sealing area, was the primary contributor to the oxygen ingress. After further investigation, the internal passive barrier layer of the membrane was found to have non-uniform coverage causing high oxygen ingress in this area. With this short-term project achievement, the customer could define new barrier layer thickness packaging material specifications and quality control checks with their supplier before going to high volume production runs.

About PTI

With over 20 years of experience in barrier materials and permeation testing, PTI offers expert support in developing specific testing methods and performing root cause analysis.

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