

Oxygen Indicator Solution

A good barrier to oxygen is critical in ensuring the retention of quality in packaged foods and beverages. Typically, the assessment of oxygen barrier properties in packaged foods is conducted using a gas flush method which tests the packages in a dry state. Most foods are not dry! At GFTC, we have developed a method for quantifying oxygen ingress using the package in its intended state, i.e., as a sealed container for a liquid system. As oxygen enters the packaging system, the Oxygen Indicator Solution turns from colorless to blue, deepening in intensity with increased ingress. Non-destructive spectrophotometric measurements allow the rate of oxygen ingress to be determined.

Advantages of Oxygen Indicator Solution:

- measurements are non-destructive
- system mimics behavior of food products (Vitamin C degradation)
- measurements are conducted on the entire packaging system including closures
- results correlate well with other methods
- large numbers of samples can be tested simultaneously
- both rigid and flexible packages can be measured
- testing environment can be varied (RH, temperature, carbonation, vibration) to simulate actual storage/transportation conditions and accelerated conditions



Oxygen Indicator Gel

For most packages, oxygen ingress is **NOT** evenly distributed. Let the OXYGEN INDICATOR GEL system, developed at GFTC, show you precisely **where** oxygen is entering the package.



Initial Stage

Developed Stage

Common Points of High Ingression Rigid Plastic Containers

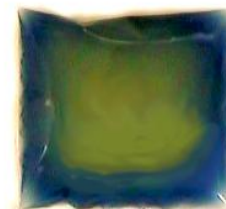
- closure area
- base area
- hot-fill panels or differentiating patterns
- less crystalline regions of the sidewall

Sealed Flexible Packaging

- Corners and seams
- Fitment



Initial Stage



Developed Stage