



INGENIA INCIRCLE® ITZ-474

MOISTURE BARRIER ENHANCEMENT MASTERBATCH

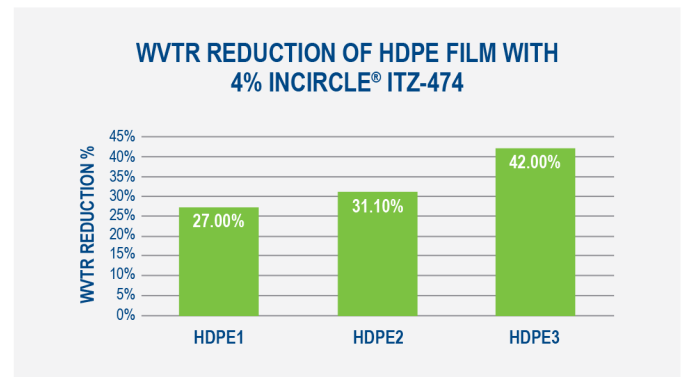


Moisture barrier films are extremely important in many food packaging applications. They can protect fresh food from loss of water and prevent dry foods from absorbing water from humidity in the air. High density polyethylene (HDPE) film inherently has good moisture barrier properties, however there are many benefits realized from further improving the moisture barrier including:

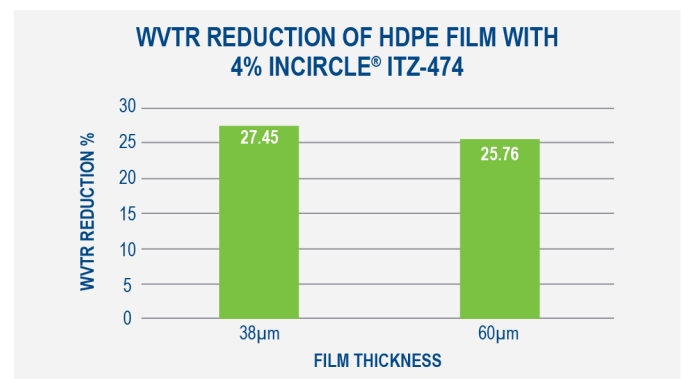
- Extending the shelf life of packaged food
- Improving the performance of moisture-sensitive oxygen/gas barrier layers/materials
- Opportunity to down-gauge films to lower the costs
- Opportunity to improve the sustainability of packaging by reducing the amount of packaging required

INCIRCLE® by INGENIA branded products are designed to support the circular economy through various types of product technology. INCIRCLE® ITZ-474 allows for downgauged films due to improved moisture barrier property, which is a benefit in terms of source material reduction.

INCIRCLE® ITZ-474 lowers the WVTR of standard HDPE films by up to 40% at 4% optimal loading.



As well the moisture barrier performance is excellent across a range of film thicknesses.



The performance improvement found with INCIRCLE® ITZ-474 has been validated in a variety of HDPE resins from several different resin producers. This new moisture barrier enhancement masterbatch provides film formulators with additional design possibilities in barrier films.