



APPLICATIONS

Polyolefin consumer packaging applications where recycled polyethylene (rHDPE) is being utilized in conjunction with or in place of virgin resin to increase recycled content and overall sustainability of the package. Applications span across bottles, tubes, caps, closures and many other components found in Food and Beverage, Personal Care, and Home Care packaging.

ADVANTAGES

Improved Processing & Recyclability

rEPEAT^{PE} protects the polymer during thermal exposure, reducing degradation, which leads to improved melt flow and homogeneity by preventing crosslinking and gel formation.

Enhanced Oxidative Stability

A stabilizer protected rHDPE withstands the oxidation process longer at elevated temperatures in the presence of oxygen. With this improvement in OIT (Oxygen Induction Time), the rHDPE can experience repeat recycling and reuse with less cracking and failures.

Mechanical Properties

The stabilization properties of **rEPEAT^{PE}** have no adverse effect on tensile properties including stiffness, strength, and ductility of the recycled HDPE extending the useful life of the end article as it goes back into the recycle stream.

Reduced Color Shift

rHDPE also experiences less yellowing tendency and color shift in the b* value when using **rEPEAT^{PE}** by preventing the formation of degradation components.

PRODUCT DETAILS

We offer **rEPEAT^{PE}** rHDPE stabilizer masterbatches in both virgin polyethylene and 100% recycled polyethylene carriers for solution options that meet your end article needs. These products are available around the globe in an easy to dose pellet solution. Designed for optimal performance in polyethylene extrusion blow-molding, injection molding, and sheet extruded applications. Consultation with Penn Color regarding your unique application and specific requirements ensures that the recommended product and dosage levels align with your desired outcomes.

Product ID	Description	Product Type	Carrier	LDR%
62PA22222	rHDPE stabilizer additive	Masterbatch	Virgin PE	1%
100PA2	rHDPE stabilizer additive	Masterbatch	Recycled PE	1%

* Regional suffixes will apply US=U, EU=E, ASIA=T

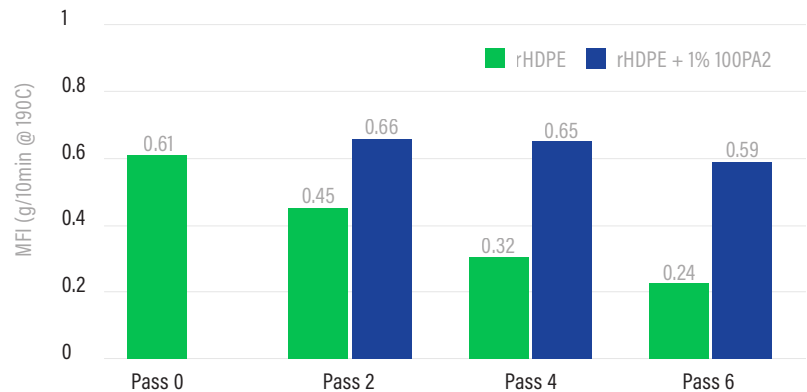


TECHNICAL DATA

Maintaining the Melt Flow Index (MFI) is crucial for rHDPE to ensure consistent processing. Even the slightest drop in MFI can cause increased back and injection pressure, uneven parison formation, slow mold filling, poor surface finishes, weak weld lines, incomplete cavity filling, longer cycle times, and even increased machine wear across extrusion blow molding, injection molding, and sheet extrusion. These challenges ultimately reduce production efficiency and decrease productivity. With **rPEPEAT_{PE}** stabilization, rHDPE experiences reduced MFI dips and improved Oxidation Induction times which leads to improved processing of rHDPE.

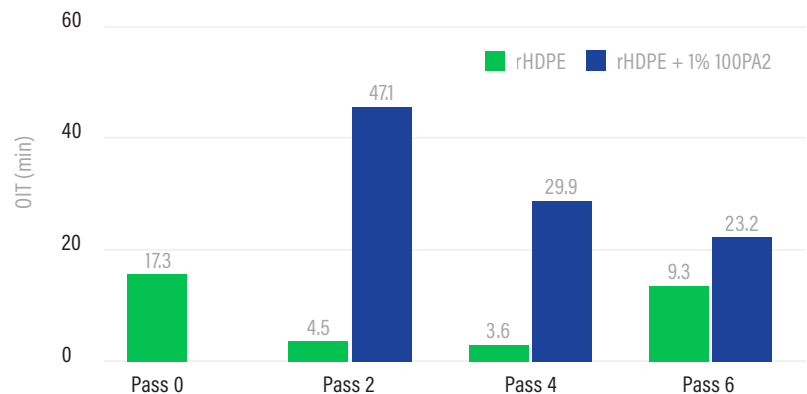
Melt Flow Index (MFI)

Comparison of the impact of various thermal exposures on rHDPE MFI and the protection provided by rPEPEAT during those same exposures. Each "pass" includes one extrusion cycle. rHDPE when stabilized with **rPEPEAT_{PE}** shows ~50% higher MFI than non-stabilized rHDPE after 2 passes, ~100% after 4 passes, and ~150% after 6 cycles.



Oxidation Induction Time (OIT)

Comparison of OIT across various thermal exposures with and without **rPEPEAT_{PE}** stabilization of rHDPE. Each "pass" includes one extrusion cycle. rHDPE when stabilized with **rPEPEAT_{PE}** shows greater than 8X longer time to oxidize after 4 passes, and nearly 2.5X after 6 passes.



IMPORTANT INFORMATION

ISO 9001 Certified

LDR recommendation is intended for guidance only and may need to be adjusted based on performance, processing method and regulatory requirements. Detailed compliance documentation can be provided by Penn Color's Product Stewardship Department upon request. However, be advised it is the responsibility of the user to assess its product uses and applications and assure compliance to all applicable laws and regulations, including FDA 21 CFR and EU food contact status. Regional coding suffixes may apply

