

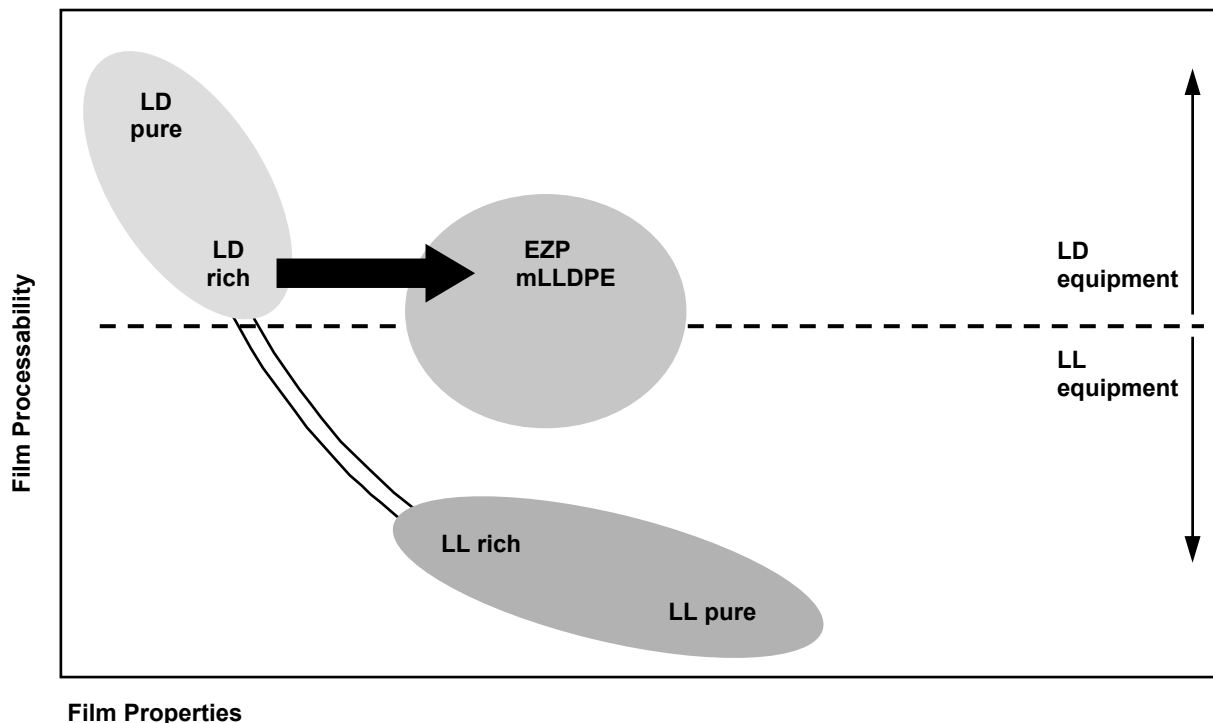
Univation Technologies Easy Processing (EZP) Metallocene LLDPE Resins

Fact Sheet

Metallocene linear low-density polyethylenes derived from Univation's XCAT™ Catalyst and UNIPOL™ PE Process technologies are advancing rapidly in the world's market. The UNIPOL PE Process and XCAT catalyst combination powers the premier polymer technology through advanced product design and precise catalyst engineering.

Resin producers around the world need metallocene polymers to stay at the forefront of PE developments. Metallocene technology can expand producers' business opportunities and enhance profitability through higher value-added products, new products for new markets and new applications for existing markets.

Performance Domains for EZP and Film Resins

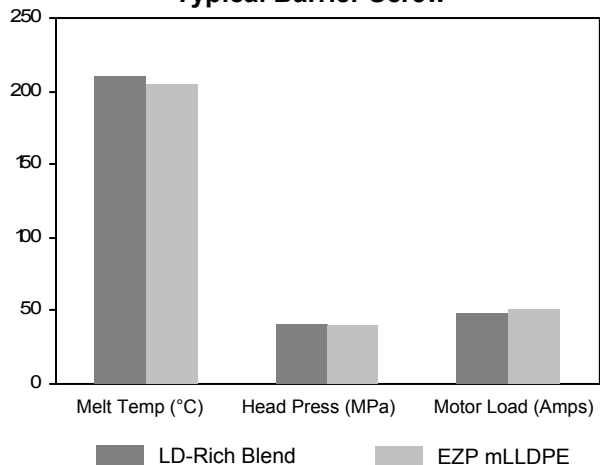


XCAT Metallocene Catalysts for Easy Processing (EZP) mLLDPE

Univation developed XCAT Metallocene Catalysts for manufacture of easy processing (EZP) mLLDPE and enhanced toughness LDPE, thereby creating improved-strength replacements for LDPE/LLDPE blends and pure

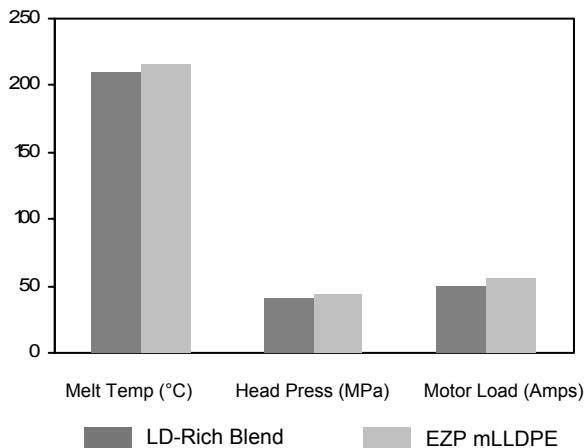
high-pressure LDPE products. EZP mLLDPE resins show improved extrusion and bubble stability in blown film processing while providing an excellent balance of properties.

Typical Barrier Screw



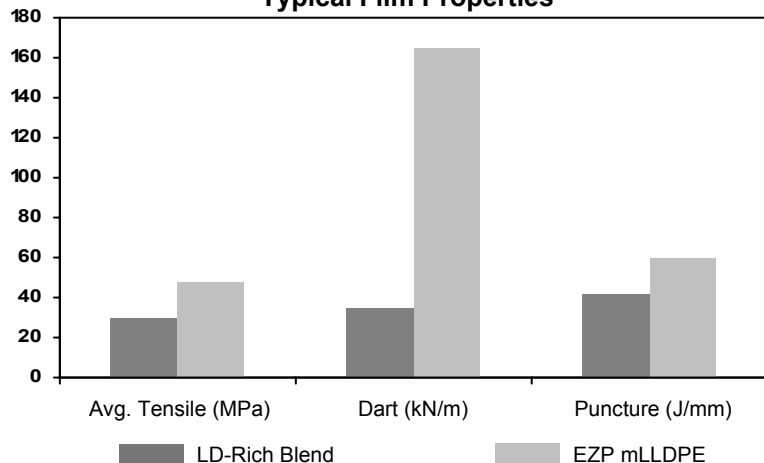
The processing flexibility of these materials permits them to be used to replace blends of LLDPE with LDPE while providing improved tensile and impact strength with reduced haze. EZP mLLDPEs match the processing ease of LDPE in high volume blown film applications with exceptional bubble

Typical LDPE Screw



stability and improved film toughness properties. To your customers these improved resins mean easier, more efficient extrusion and conversion with less blocking, less waste and less downtime compared to conventional resins, without the need for retooling existing conversion equipment.

Typical Film Properties



Extensive Application Opportunities

- Pallet shrink wrap
- Collation shrink wrap
- Heavy-duty bags
- Form-fill-seal bags
- Food packaging film
- Carrier bags
- Agriculture films
- General purpose bags
- Stretch Handwrap

Retrofitting XCAT Catalysts to the UNIPOL PE Process

When retrofitted to UNIPOL PE gas-phase process technology, Univation's XCAT Metallocene Catalysts deliver significant operating advantages to the licensee. Compared to non-metallocene catalysts, XCAT Metallocene Catalysts generally require significantly lower comonomer and hydrogen levels in the reactor resulting in less comonomer dissolved in the resin. This improves system efficiency since less of these raw materials are discharged with the product. Lower dissolved comonomer in the resin, combined with lower extractability levels resulting from the narrow composition distribution,

also means these resins are less sticky in the reactor than conventional LLDPE. This permits more induced condensing agents to be used.

For licensees, these benefits mean improved operating economics, superior product quality and a broader range of product capability. Combine these benefits with the enhanced market value of tougher, clearer, better-performing polyethylene resins, and you have a powerful, profitable way to expand your business capabilities—and a superior product to deliver to your customers.

The foregoing is intended to be only a general introduction, for more information and to learn how XCAT metallocene catalysts and the resins they produce can add value to your business and provide you a competitive advantage, please contact us at 1.713.892.3700. UNIVATION, XCAT, and the stylized "U" are registered trademarks (Reg. U.S. Pat. and Tm. Off.) of Univation Technologies. UNIPOL is a registered trademark (Reg. U.S. Pat. and Tm. Off.) of The Dow Chemical Company or an affiliated company of Dow. UNIPOL is licensed for use to Univation Technologies. Copyright © 2007 Univation Technologies, LLC. All rights reserved.

