

The future of **sustainable packaging**

Polyethylene resins for recyclable TF-BOPE solutions

DOW

®



The search for **sustainability**

Sustainability. Recyclability. Consumer convenience. Brand owners want packaging that answers these demands. And so does our world. That's a lot for a flexible packaging supplier to provide. Together, we can make it happen.



Improved resins – such as the 2016 introduction of INNATE™ Precision Packaging Resins from Dow – brought new levels of packaging performance. But what about performance and total recyclability? Can you have both?

Introducing INNATE™ TF

Polyethylene Resins for Tenter Frame Biaxial Orientation

Through research and collaboration, we reached our goal to develop a recyclable orientation film. INNATE™ TF Polyethylene Resins for Tenter Frame Biaxial Orientation (1.7g/10 min MI; 0.926 g/cm³ density) feature a unique molecular architecture that makes it possible.

Polyethylene film, redefined

Polyethylene film created using INNATE™ TF Polyethylene Resins for Tenter Frame Biaxial Orientation comprises a stable 5x9 orientation made on an industrial-scale BOPP line with a broad operation window. The process creates outstanding physical properties. It's characterized by narrow gauge variation, improved stiffness, toughness, optical properties, and low-temperature resistance.

INNATE™ TF polyethylene resins for tenter frame biaxially oriented film can achieve up to 80% less haze, twice the impact strength and tensile modulus, and three times the puncture resistance and tensile strength of traditional PE products. They also have excellent flex crack resistance, even under low temperature.

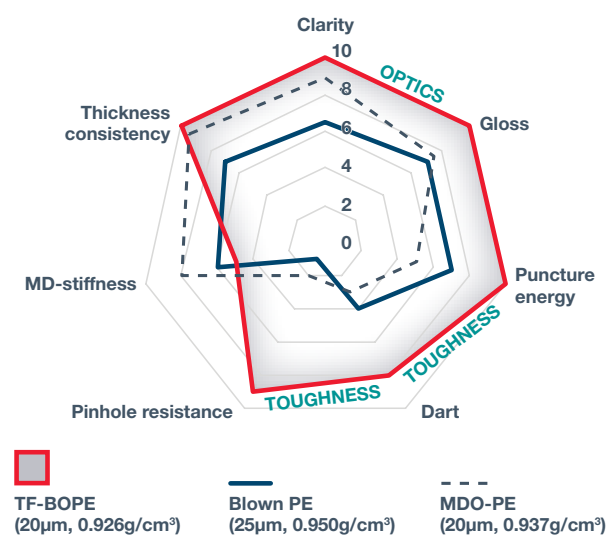
100% performance

It's all about performance. Performance better than traditional polyethylene resins. That can create films that are dazzling, durable, balanced. That can achieve everyone's definitions of sustainability. INNATE™ TF polyethylene resins meet all of these demands, and more.

Sustainability. Recyclability.
Consumer convenience.
What brand owners want.
What we want.

Let's find the answers.

Figure 1: TF-BOPE film vs. other PE films



INNATE™ TF resins – and mono-material flexible packaging structures made with them – are 100% recyclable in existing PE recycle streams.

100% recyclability

When most people hear “sustainability,” they think about protecting the environment. So do we. It’s why we’ve invested around the world developing ways to do just that. We’ve introduced “design for recyclability,” a developmental process in which all aspects of a package lifecycle are addressed to create an efficient and recyclable or reusable product.

It’s why we’re so excited about products like INNATE™ TF Polyethylene Resins for Tenter Frame Biaxial Orientation. The environmental advantages of using INNATE™ TF polyethylene resins make them an excellent option for promoting sustainability initiatives. That’s because INNATE™ TF resins – and flexible packaging structures made with them – are 100% recyclable in existing PE recycle streams.

The resins can be used alone, in multi-layer structures with other PE layers, even as laminates. Adding to their sustainability claims, they offer significant material reduction and downgauging opportunities while providing superior properties.

Create new possibilities

Expanding product potential. Reducing material use. Finding production efficiencies. Aiding sustainability. INNATE™ TF Polyethylene Resins for Tenter Frame Biaxial Orientation provide ways to enable all of these enhancements.

Polymer substitution – INNATE™ TF resins have excellent mechanical properties that can reduce lamination thickness by replacing BOPA and other polymers such as BOPP or BOPET in abuse layers for packaging. Material replacement can also offer easy handling and cost optimization.

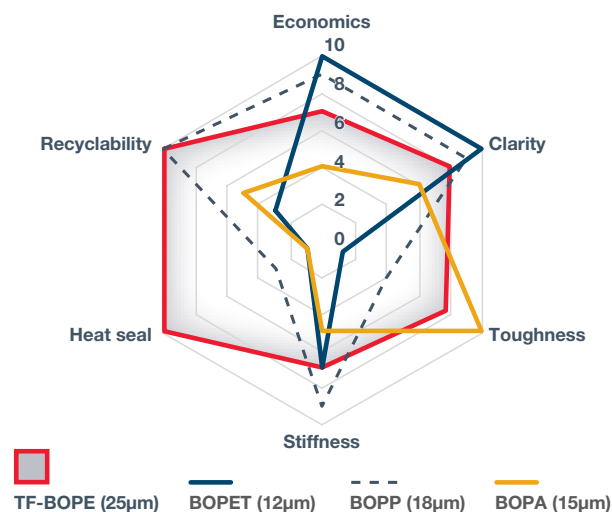
Convenience of use – Alone, or in laminations (e.g., BOPET//BOPE), INNATE™ TF resins create films that are easy to tear, an important requirement for packaging products, thereby increasing consumer convenience in use.

A fully recyclable structure – With excellent optical performance and printability, the TF-BOPE film can be used directly as the printed layer of the packaging. And by combining it with other PE functional layers (e.g., BOPE//PE), INNATE™ TF resins can achieve packaging with an all-PE structure, making it more convenient for recycling and increasing sustainability.

Imagine the potential

Then call us. Let’s talk, and explore how INNATE™ TF Polyethylene Resins for Tenter Frame Biaxial Orientation – and our entire diverse portfolio of resins – can advance your future projects.

Figure 2: TF-BOPE film vs. other films



TF is the future of **sustainable packaging**

What can it do for the future of your applications?

Let's explore the possibilities together.



The potential of INNATE™ TF Polyethylene Resins for Tenter Frame Biaxial Orientation was made real via testing and collaboration at Pack Studios. And the doors are open to you, too. The global developmental resources of Pack Studios can further your packaging and sustainable packaging pursuits. Here, designing for recyclability is made easier with industry-scale fabrication equipment, filling lines, and physical and analytical testing capabilities to innovate, prototype, test, and accelerate new products to market.

**Greatly accelerating
speed to market,
giving you a valuable
competitive edge.**





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