ExxonMobil

Scientex achieved impressive stiffness and toughness in MDO films using Exceed™ S performance polyethylene

Excellent stiffness, toughness | **Low gel** | **Easy processing** | **Good optics**

Challenge:

Scientex, a leading player in flexible plastic packaging with headquarters in Malaysia and plants in Malaysia, Vietnam, Myanmar and the US, had been testing various solutions for its machine-direction orientation (MDO) films for some time. In MDO film production, a polymer is heated to a temperature slightly below its melting point and stretched in a particular orientation. Stretching film in machine direction accentuates its properties many times over and makes two or three times more product with the same amount of plastic.

However, the MDO process is highly demanding as the stretching operation to make thin films requires an easy-to-process resin with low gel, good bubble stability and low melt pressure characteristics to prevent intermittent production stoppage or turbulence. For Scientex and other film manufacturers using MDO technology, process stability is critical and key to maximizing production rate and minimizing production wastage.

Scientex was looking for a solution that reduces gel and film breakage, which is the main issue faced during the MDO process, as well as maintains good stiffness, toughness, and optical properties in the MDO films.

Solution:

Knowing the requirement from Scientex with its MDO film, the ExxonMobil team introduced Scientex to its latest and most advanced performance polyethylene, Exceed™ S, before it was commercially available in April, 2022. Scientex was one of the first in the world to trial and test the new resin in their MDO film.

After intensive and prolonged trials, Scientex knew they had found a solution by using Exceed S 9243.

The Scientex team was impressed by the Exceed S 9243 trial results. They found they could run the Exceed S MDO solution continuously without much issue. The start-up was easy; the operation was smooth with no time wasted on any film breakage. Processing stability featuring good melt strength, excellent bubble stability, acceptable melt pressure, and less gel in the film resulted in significant cost savings to Scientex from a reduction in film wastage and man-hours. The team was also impressed with the significant boost to stiffness and high tear performance they saw with the Exceed S solution.

Yong Chee Ming, Scientex Great Wall General Manager, enthused: "The key advantage of Exceed S is process stability with good melt strength and bubble stability during the extrusion process. We have achieved much better yield in the MDO process due to improved stretchability, lesser gels and better stiffness compared to our existing film".

SCIENTEX
healthy, friendly & happy ...

Results and gains

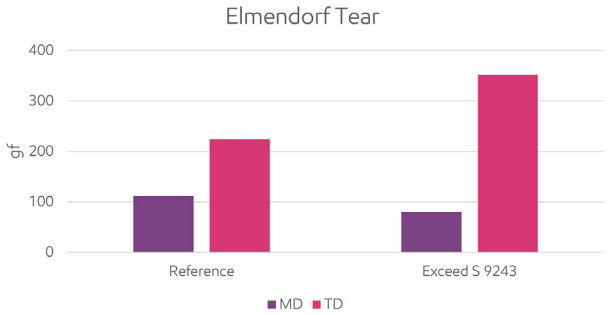
Stiffness is a critical requirement in MDO film as it allows Scientex to market its MDO films more competitively against traditional PET or other oriented non-PE-based laminates. Currently, flexible packaging films are mostly composite laminates comprising a PE sealant film with PA/PET substrate films. These multi-material structures can be difficult to recycle with mechanical processes. A PE-based MDO film can replace PA/PET substrate films to make full-polyethylene packaging suitable for liquid and solid contents.

By combining state-of-art converting technology from Scientex with an innovative Exceed S platform from ExxonMobil, both companies are pushing the boundaries of MDO full-PE packaging design by offering mono-material packaging solutions with sustainability benefits.

Due to successful trials and Scientex' confidence in the new Exceed S MDO solution, they are leveraging it in end applications such as frozen food packaging, stand-up pouches for shampoo, detergent and pet food and glove packaging.

Exceed S 9243 stiffness performance vs incumbent film by Scientex*

Tear performance of Exceed S 9243 versus incumbent film by Scientex*



* Tests/test results performed and provided by Scientex

About Scientex

Scientex started out as a PVC sheeting factory in 1968. Today, Scientex is a leading player in flexible plastic packaging. Its businesses cover the packaging value chain from stretch films, base films and printed films to bags and multi-layered flexible plastic packaging solutions for both industrial and consumer packaging. From a local Malaysian enterprise with headquarters and plants in Malaysia, the company has expanded with additional manufacturing facilities in Vietnam, Myanmar and the United States. The company was publicly listed in 1990 and has since diversified into property development in Malaysia. As a leading manufacturer in flexible plastic packaging, Scientex is always looking to work closely with resin suppliers to deliver value to brand owners and society with a focus on providing sustainability benefits.

Why ExxonMobil PE? Why today?

tomorrow's **performance** today

What some might view as solutions that will only happen in the future, ExxonMobil PE is making possible today – through our innovative and reliable products, collaborative approach, technology leadership and support, and our unmatched global supply and resources. Why wait for tomorrow to advance your business today? Learn more about how we're helping our customers create packaging solutions with sustainability benefits now. Contact your ExxonMobil PE representative and begin experiencing tomorrow's performance today.

Contact us for more information:
exxonmobilchemical.com/pe

ExxonMobil