ExxonMobil

Helping Nestlé meet their circularity goals with strong and tough collation shrink films incorporating 25% recycled content for secondary packaging

Benefits

- Puncture resistance
- Stiffness and holding force for product stability and protection
- Toughness
- Incorporates recycled content

The challenge

To help meet their sustainability goals, Nestlé wanted to use post-consumer recycled content (PCR) of 25% for the collation shrink film used to package their milk powder tins and flavor concentrate tins at four of their processing plants in Central America. They had previously used 100% virgin plastic.

They approached their film maker, the Ternova Group, with the mission. Ternova, who has been producing collation shrink films for many years using ExxonMobil's performance PE products, Enable™ and Exceed™ resins, reached out Channel Prime Alliance International (CPAI) and ExxonMobil for help. CPAI is a leading polymer resin supplier in Central America and ExxonMobil's branded distributor for many years.

"The issue with using PCR is that it causes more variation in the performance of the collation shrink film," shared Miguel Romano, Head of Innovation and Business Development at Ternova. "Regular resins cannot offset this variation and therefore the film will falter in its quality over time. We saw evidence of this during our trials. Films produced with most commercially available resins caused the packages to loosen and had more incidents of punctures," he added.

The solution

CPAI recommended a combination of Enable™ 4002 MC and Exceed™ XP 6026 ML for the application. Exceed XP 6026 can significantly improve the toughness and puncture resistance of the film which, together with high holding force, can improve the load protection and pallet stability throughout supply chain. Enable 4002 brings both a high density which contributes to holding force and a low melt index for shrink performance.

The combined formulation provides a good combination of excellent toughness, high clarity and a tailored balance between elasticity and holding force that can help brand owners protect their products and deliver them securely.

"Enable 4002MC and Exceed XP 6026ML help maintain the film properties, allowing us to reach the desired PCR percentage goal without compromising the film's performance," Romano enthused.

The successful application of 25% PCR content in the shrink film is made possible by close collaboration amongst four parties. ExxonMobil and CPAI provided technical support during the whole development. Ternova designed and created the films for the different Nestlé production sites and used its in-house produced PCR resins. Nestlé provided the support to fully qualify the applications at all their sites.

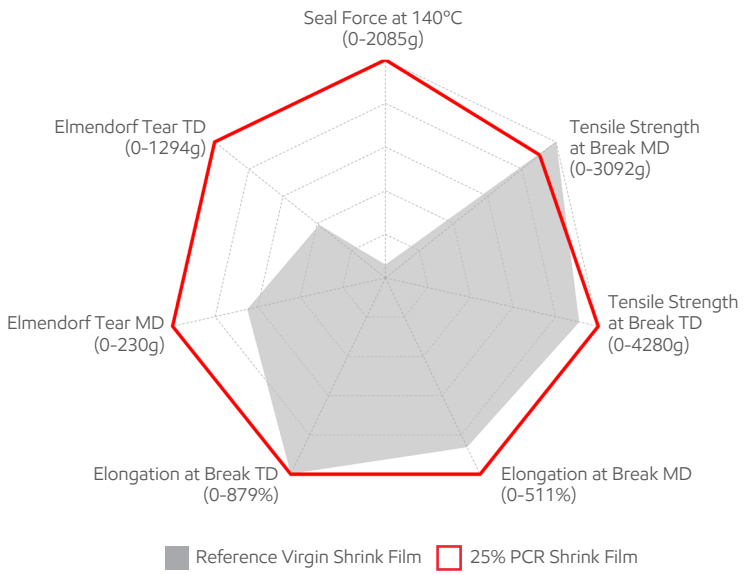
CPA INTERNATIONAL a RAVAGO Company TERNOVA Nestlé

The results

The shrink film solution incorporating PCR content has made it possible for Nestlé to meet their sustainability KPI in Central America.

"Ternova's recyclable shrink film allowed us to start moving towards reducing virgin plastic and circular post-consumption plastic packaging. This project demonstrates that a circular shrink film is possible in Central America (El Salvador) and with the right partners it can be implemented elsewhere in the world. Our next goal is to include food-grade post-consumer recycled plastic in our primary food packaging," said Claudia Alvarado, Sustainability Manager, Nestlé Central America.

Performance of shrink film incorporating 25% PCR content vs. reference virgin shrink film



		Tear Resistant (gf)		Tensile Strength @ Break (gf)		Elongation @ Break (%)		
Resins	Thickness (microns)	MD	TD	MD	TD	MD	TD	Seal strength @ 140C (gF)
25% PCR + LDPE + Exceed™ XP 6026ML + Enable™ 4002	51	230	1294	2796	4280	511	879	2085
LDPE + HDPE + Enable 2703	51	149	503	3092	3896	440	876	124

Testing results from Ternova

Bales of the collation shrink film with 25% PCR content being produced at a Ternova plant.

Tough, secured protection is possible with the use of ExxonMobil performance PE in collation shrink film with recycled content.

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