TOBE PACKAGING — SINGAPORE

Flexible-Film Processor Optimizes All-PE Food Packaging

Tobe Packaging's breakthrough was to create its Ecolefin PE multilayer film that could be applied with a specialized barrier coating.

Exceed S mLLDPE is a major part of the Ecolefin all-PE structure as is Aegis's OX2 barrier coating. Photos: ExxonMobil Chemical and Tobe Packaging

By Lilli Manolis Sherman
Contributing Editor

Within the last two years, Singapore's Tobe Packaging aimed to develop an all-PE multilayer film structure for food packaging that would *not* fall short in offering the same kind of protective barrier of multimaterial food packaging and would be much easier to recycle.

The film processor's breakthrough was an all-PE structure to which a barrier coating can be applied. In August 2022, the company's Ecolefin was certified as 97% recyclable by Germany-based Institute cyclos-HTP, one of Europe's leading and recognized organizations for recyclability testing and certification. A month later, when Tobe launched Ecolefin at the international FHA-Food & Beverage Exhibition, interest was sparked from multinational food companies from the United States, South Korea, Switzerland, Spain and Australia.

Tobe Packaging is initially using Ecolefin for frozen food, chilled food and vacuum packaging, but is aiming to "tweak the material's formula" to better suit different products such as easy-to-open snack packaging.

All this is thanks to its close collaborations with ExxonMobil Chemical, and its specialized PE film resins, most notably its new Exceed S mLLDPE, and Singapore's Aegis Packaging, which developed and supplied a specialized O2X barrier coating. The development was headed by Tobe packaging director Lim Zie Hui, whose father established packaging business Lension in 1976, and acquired Tobe in 2019.

Tobe, which has now expanded its products and services beyond Southern Asia to places like Sri Lanka, currently has blown film extruders, printing machines, lamination machines, slitting and bag making machines. Before the end of 2023, the company will be installing two new machines: a printing machine which can operate using water-based ink and a new coating machine.

Says Lim, "Exceed S is a major part in the Ecolefin solution, which provides balanced stiffness and toughness of full PE-laminated structure. Aside from Exceed S, we also utilize the Exceed series mLLDPE to enhance the film sealing performance and the Enable series mLLDPE to improve the film stiffness."

Ecolefin is said to be well suited for frozen food, chilled food and rice packaging. Ecolefin is used to replace the incumbent multilayer laminated structure, particularly nylon and PE laminated film — more specifically, nylon 6 used as a barrier and LDPE used as sealant. The O2X barrier coating developed by Aegis is applied on the film, and Tobe has invested in its own specialized coating machine.

Ecolefin's oxygen barrier is about eight times better than that of the previous film structures. This translates to longer shelf life for food packaged in Ecolefin. Tobe is currently using a third party laboratory to conduct tests to determine how long the material can prolong the shelf life of different food products.

Lim says Ecolefin is 10% to 15% higher in price than nylon 6/LDPE alternative. However, considering the sustainability advantage it offers, Ecolefin presents the opportunity to achieve multiple benefits. With its ability to be sealed at lower temperature, customers can save on electricity consumption and contribute to reducing their carbon footprint. In addition, its monomaterial composition facilitates convenient recycling, further enhancing its eco-friendly attributes.

Tobe is also aiming to design other packaging options, including stand-up pouches, and to "tweak the material's formula" to better suit different products, such as snack packaging that is easier to open. As it moves ahead with Ecolefin, Tobe is exploring how to further its sustainability efforts and bottom line, including the recycling of food packaging into products such as trash bags, by working with supermarkets and third-party collectors. PT