



Exceed™ Stiff+ performance polymers

Exceed™ Stiff+ performance PE-based hygiene overwrap helps Chiga Light to bring greater value to converters and increased cost saving down the value chain



Stiffness and toughness



Increased package durability



Formula simplification



Brand promotion/appeal



Easy processing

Data and results presented herein apply specifically to the noted application under this fact sheet. Your results may differ depending on factors such as operating conditions, equipment and materials used.

Challenge

Meeting market demand for lightweight packaging with good stackability

Cardboard boxes are widely used as secondary packaging for hygiene products to reduce risks associated with impact during transportation and storage. With the market constantly challenged by high logistics costs, there is increasing interests in alternative secondary packaging that can deliver at lower cost with better performance.

Chiga Light Industries Sdn. Bhd. (Chiga Light) is a producer of wide range of plastic extrusion films. As a leading company in the diaper packaging industry, it was faced with the challenge of addressing the market's demand for an economical alternative that could reduce packaging weight without compromising on quality and functionality.

Traditional cardboard box packaging that weighs approximately 400g per box was proving to be cumbersome and costly. Each box added substantial weight to the overall product, which weighs around 3.3kg, resulting in high logistics costs. To address this issue, Chiga Light sought to replace their cardboard boxes with a more lightweight plastic overwrap.

Mr Lim Keng Hua, General Manager of Chiga Light, had been exploring various materials to find the ideal solution. One possible material high-density polyethylene (HDPE) offered excellent stiffness and stackability but fell short in printing quality and clarity. Conversely, linear low-density polyethylene (LLDPE) provided the desired clarity but lacked the necessary stiffness for stackability.

Solution

Incorporate Exceed™ Stiff+ performance polyethylene in the formulation to create durable and light weight hygiene overwraps

Chiga Light collaborated with ExxonMobil to develop a solution that delivered secondary packaging that are light weight and able to deliver the same toughness of cardboard cartons.

However, finding the right material proved to be a complex task. The new packaging needed to balance aesthetics, print quality, clarity, and stackability—an essential requirement for efficient storage and transportation.

An Exceed™ Stiff+ performance polyethylene (PE) based solution was introduced for the creation of the plastic overwraps. Exceed™ Stiff+ performance PE provides the stiffness needed to deliver the holding force, good film optics for improved brand appeal and also simplifies the formula for easy processing.



Results

Light weight packaging with good stackability and cost savings down the value chain

The new plastic overwrap developed with Exceed™ Stiff+ performance PE solution weighed only 64g for packing equivalent packets of diapers in one cardboard box, offering a substantial reduction of 84% in packaging weight. Diapers packed in the plastic overwrap could be stacked up to a height of 1.2 meters without compromising stability. This innovative solution not only reduced the overall packaging weight significantly but also maintained the visual appeal and print quality needed for effective branding.

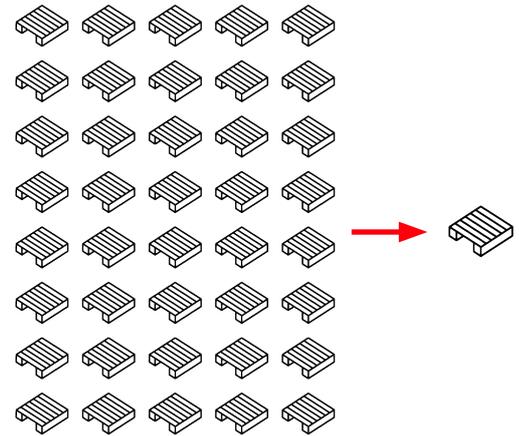
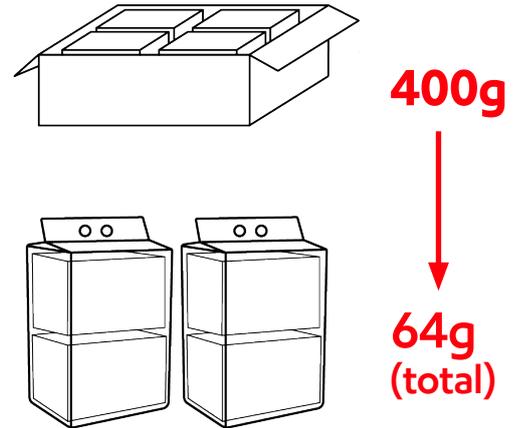
The new plastic overwrap solution offered potential benefits such as:

- Similar stiffness and lower gels compared to a high-density based formulation
- Good optics with excellent print quality
- Easy to process
- Good mechanical performance to enable downgauged solution
- Formula simplification

Mr. Lim said, "At Chiga Light, we want to be a valued suppliers to our customers, offering them options to potentially help reduce their environmental footprint and meet their ESG goals. With Exceed Stiff+ performance polyethylene we were able to achieve so much, so simply."

Exceed Stiff+ performance PE resins can significantly improve the performance and durability of secondary packaging. With an exceptional combination of film stiffness and toughness, a durable and lighter secondary packaging can be created to give excellent protection during product transportation.

The new packaging solution brought substantial benefits beyond weight reduction as customers were also able to save on warehousing costs. For example, only one pallet is now required to store and transport packets of diapers packed in the new plastic overwraps versus 40 pallets needed for an equivalent number of packets of diapers packed in cardboard boxes. This significant reduction in storage space translated to cost savings and operational efficiencies.



Data from tests performed by or on behalf of ExxonMobil.

ExxonMobil
Signature Polymers

Bring your impossible

ExxonMobil Signature Polymers was born from the belief that people fuel progress. From automotive and construction to packaging, agriculture, industrial, and beyond, we leverage the scale and reach of ExxonMobil to deliver the insights and innovations that empower our diverse, global partners to take their businesses to new heights. We continuously work to provide the listen-first, service-driven, game-changing collaboration that unlocks opportunities for our partners and advances their business goals.



© 2024 ExxonMobil. ExxonMobil, the ExxonMobil logo, the interlocking "X" device and other product or service names used herein are trademarks of ExxonMobil, unless indicated otherwise. This document may not be distributed, displayed, copied or altered without ExxonMobil's prior written authorization. To the extent ExxonMobil authorizes distributing, displaying and/or copying of this document, the user may do so only if the document is unaltered and complete, including all of its headers, footers, disclaimers and other information. You may not copy this document to or reproduce it in whole or in part on a website. ExxonMobil does not guarantee the typical (or other) values. Any data included herein is based upon analysis of representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee, expressly or impliedly, the merchantability, fitness for a particular purpose, freedom from patent infringement, suitability, accuracy, reliability, or completeness of this information or the products, materials or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of or related to anyone using or relying on any of the information in this document. This document is not an endorsement of any non-ExxonMobil product or process, and we expressly disclaim any contrary implication. The terms "we," "our," "ExxonMobil Product Solutions" and "ExxonMobil" are each used for convenience, and may include any one or more of ExxonMobil Product Solutions Company, Exxon Mobil Corporation, or any affiliate either directly or indirectly stewarded.

What's new: **ExxonMobil Signature Polymers**

All our polymers are now positioned under a single portfolio brand: Signature Polymers. The aim is to simplify our product architecture and naming to improve portfolio navigation for you. We would like to stress that our commitment to high quality products remains the same. The composition of the products are unchanged, it is only the names that updated. We will be making these modifications over the next few months, through mid 2025, so you will see both old and new grade names highlighted during that time. Here's a quick overview of brand and grade that will be changed in this document:

Legacy Commercial Name

Exceed™ S

New Commercial Name

Exceed™ Stiff+

Want to see what's changed in our portfolio? Go to exxonmobilchemical.com/sptransform