



Napco employs thinner heavy duty sacks (HDS) that can offer excellent bag drop performance and creep resistance

Potential Key Benefits



Downgauging
for less material
usage



Excellent
bag drop
performance



Creep
resistance
maintained



Easy to
process

Challenge:

Develop Heavy Duty Sacks to pack petrochemical polymer resins as thin as 105µm

Napco National, a leading manufacturer of plastic and paper packaging solutions based in Saudi Arabia, wanted to downgauge its films used for Heavy Duty Sack (HDS), to provide a solution that offers the sustainability benefits of using less packaging material while lowering the weight of the packaging being transported for petrochemical manufacturers.

“Downgauging HDS films from our existing 125µm thickness posed two-fold challenges. First, the thinning down threatened the creep resistance, a major requirement for load stability during stacking, storage, and transportation. Second, the formulation adjustment to deliver acceptable creep resistance can adversely affect the bag drop performance,” explains Wissam Akiki, General Manager of Napco Modern Sacks. “First-rate technical support was needed to help develop a formulation that would allow downgauging, while providing the required creep resistance and bag drop performance,” adds Akiki.

Napco wanted to gain a market advantage as the first packaging company in the Gulf Cooperation Council (GCC) to offer downgauged HDS, which are primarily used by petrochemical companies for polymer resins.

Solution:

Exceed™ XP performance polyethylene for thinner HDS while maintaining creep resistance and bag drop performance

Napco National, the world’s largest supplier of petrochemical packaging, collaborated with ExxonMobil’s polyethylene (PE) business, a leader in driving innovative polymer design. The strength of ExxonMobil’s PE technical support—including formulation design and testing—together with Napco National’s 70-years of manufacturing expertise in film conversion, were crucial to the development of a new HDS film formulation.

When reference HDS films are downgauged, higher amounts of high density polyethylene (HDPE) usually must be added to manage creep resistance, but this often negatively impacts bag drop performance.

So, ExxonMobil recommended a new formulation that included Exceed™ XP performance PE and HDPE. The synergy between Exceed XP and HDPE provides opportunities to downgauge the film, deliver excellent bag drop performance and maintain creep resistance.



نابكو الوطنية
napco national

Results:

Thinner HDS enable new business opportunities

Used for 25kg polymer resin sacks, the new 105µm film — which includes Exceed™ XP — replaces the existing 125 micron film, which is based on LLDPE. The ability to downgauge the new film by more than 15% is due to the synergy between Exceed XP and HDPE. The film exhibits excellent creep resistance and maintains bag drop performance, which are both critical for load stability, safety and product protection during stacking, storage, and transportation.

"Initially, we thought downgauging an HDS film as low as 105 microns was virtually impossible, as creep resistance and bag drop performance would be jeopardized," said Mr. Issam Chaaya, Vice President Petrochemical accounts at Napco National. "But, by working together, we have created a differentiated HDS solution, which is at least 15% thinner than the existing HDS. With load stability, safety and product protection maintained, we believe the new downgauged solution provides enormous business opportunities with petrochemical companies in the region."

RESULTING POTENTIAL BENEFITS

✓	Comparable pallet stability	▪ Tested in open yard during peak summer in KSA
✓	Comparable bag drop performance	▪ Better dart impact
✓	Smooth machinability	▪ Tested in bagging line up to 2700 bags/hour speed ▪ Good bending stiffness
✓	Comparable strength & durability	▪ Better creep resistance, load stability, and puncture resistance
✓	More meters per roll	▪ Reduced changeover time ▪ Less space for storage of rolls

This chart depicts a comparison of downgauged 105 micron film with existing 125 micron film.

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? Contact your ExxonMobil PE representative and begin experiencing tomorrow's performance today in your heavy duty sack films.

©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.

Contact us for more information:
exxonmobilchemical.com/pe

ExxonMobil