



Exceed™ Tough+    Exceed™ Flow    Exceed™

## Extreme performance laminated and non-laminated freezer films

The ExxonMobil Signature Polymers polyethylene (PE) portfolio, including Exceed™ Tough+, Exceed™ Flow and Exceed™ performance polymers, delivers laminated and non-laminated freezer films with exceptional integrity that can withstand very low temperatures for less food waste. These extreme performance freezer films are easy to process and provide downgauging opportunities for more sustainable and cost-effective solutions.



### High package integrity at very low temperatures

- Extreme dart impact, puncture performance
- Outstanding bag-drop performance
- Excellent hot-tack



### Stand-out shelf appeal

- Outstanding optics
- Good stiffness and toughness balance



### Enhanced processability

- Good extrudability and high output
- Excellent modulus and bubble stability deliver outstanding machinability



### Cost reduction and sustainability benefits

- Significant downgauging opportunities
- High film integrity prevents packaging damage, reducing spoilage and waste

## Innovation opportunities

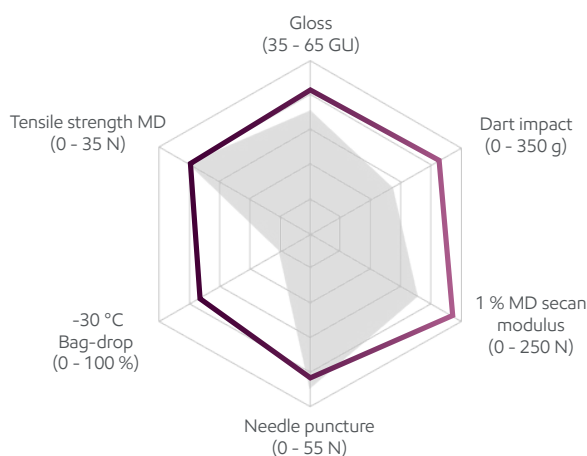
Our portfolio of performance polymers allow converters to tailor the toughness, sealing capabilities, stiffness and clarity of the film to the specific needs of each application.

- **Exceed Tough+** – when extreme performance matters – offers an unrivaled combination of extreme toughness and stiffness, elevated sealing capabilities and enhanced processability.
- **Exceed** offers superior performance by delivering excellent mechanical and sealing properties, combined with best-in-class optical properties.
- **Exceed Flow** delivers optimum solutions by combining excellent processing and bubble stability with higher alpha olefin (HAO) properties.

# Non-laminated freezer film solutions

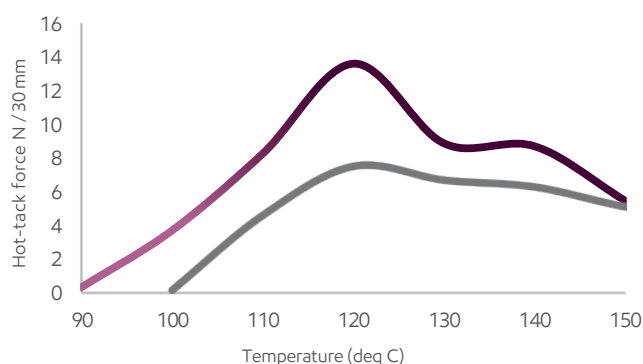
## 3-layer, 40 micron Exceed™ Tough+ and Exceed™ Flow film vs. a 3-layer, 60 micron HAO-lean non-laminated reference freezer film

- Opportunity for up to 33% downgauging
- Excellent low temperature bag-drop performance
- Great hot-tack performance
- Superior stiffness despite downgauging
- Enhanced dart and gloss
- Great melt strength for bubble stability



	Reference 60 µm	ExxonMobil solution 40 µm
Printable skin	C4-LLDPE LDPE	Exceed™ Tough+ m 0814 Exceed™ Flow m 0520
Core	C4-LLDPE LDPE	Exceed Tough+ m 0814 HDPE
Sealant skin	C4-LLDPE Exceed m 1018 LDPE	Exceed Tough+ m 0814 Exceed Flow m 0520

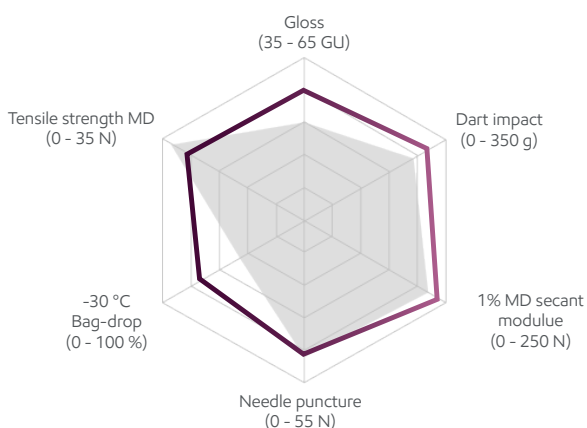
C4-LLDPE (density 0.918 g/cm<sup>3</sup>, melt index 1.0 g/10 min); LDPE (density 0.923 g/cm<sup>3</sup>, melt index 0.3 g/10 min); HDPE (density 0.961 g/cm<sup>3</sup>, melt index 0.7 g/10 min)



\* Data from tests performed by or on behalf of ExxonMobil

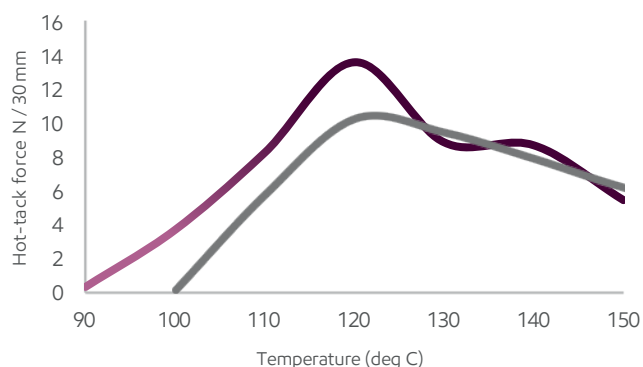
## 3-layer, 40 micron Exceed Tough+ and Exceed Flow film vs a 3-layer, 60 micron HAO-rich non-laminated reference freezer film

- Opportunity of up to 33% downgauging
- Excellent low temperature bag-drop performance
- Great hot-tack performance
- Superior stiffness despite downgauging
- Enhanced dart and gloss
- Great melt strength for bubble stability



	Reference 60 µm	ExxonMobil solution 40 µm
Skins	C8-LLDPE LDPE	Exceed Tough+ m 0814 Exceed Flow m 0520
Core	C8-LLDPE LDPE	Exceed Tough+ m 0814 HDPE

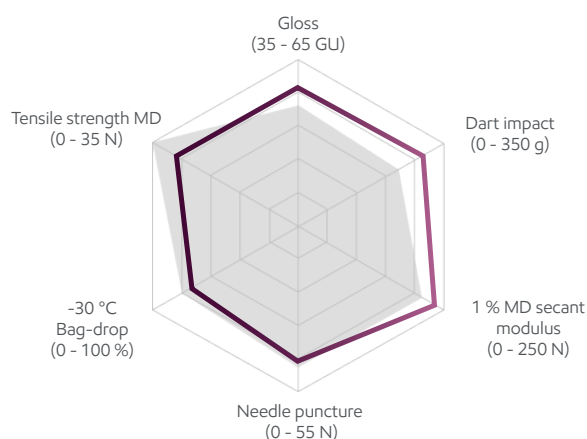
C8-LLDPE (density 0.920 g/cm<sup>3</sup>, melt index 1.0 g/10 min); LDPE (density 0.923 g/cm<sup>3</sup>, melt index 0.3 g/10 min); HDPE (density 0.961 g/cm<sup>3</sup>, melt index 0.7 g/10 min)



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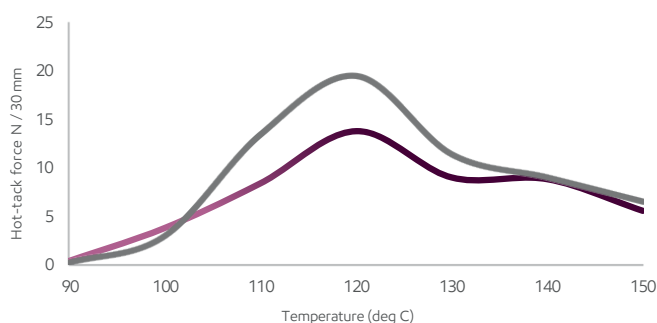
### 3-layer, 40 micron Exceed™ Tough+ and Exceed™ Flow film vs. a 3-layer, 50 micron HAO-rich non-laminated reference freezer film

- Opportunity of up to 20% downgauging
- Excellent low temperature bag-drop performance
- Superior stiffness despite downgauging
- Enhanced dart impact performance
- Great melt strength for bubble stability



	Reference 50 µm	ExxonMobil solution 40 µm
Skins	C8-mLLDPE LDPE	Exceed™ Tough+ m 0814 Exceed™ Flow m 0520
Core	MDPE	Exceed Tough+ m 0814 HDPE

C8-mLLDPE (density 0.916 g/cm<sup>3</sup>, melt index 1.0 g/10 min); LDPE (density 0.923 g/cm<sup>3</sup>, melt index 0.3 g/10 min); HDPE (density 0.961 g/cm<sup>3</sup>, melt index 0.7 g/10 min); MDPE (density 0.931, melt index 0.2 g/10 min)

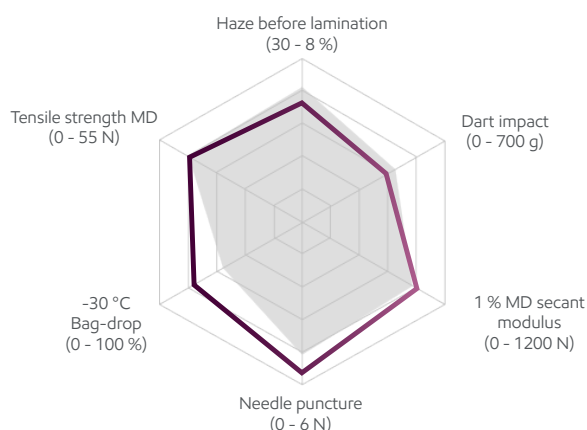


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## Laminated freezer film solutions

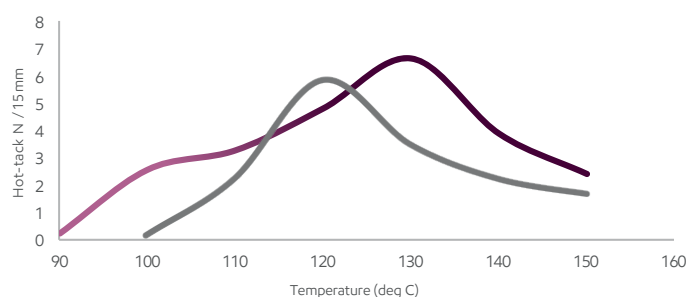
### 3-layer, 40 micron Exceed Tough+ and Exceed Flow laminated freezer film vs. a 3-layer, 60 micron HAO-lean reference laminated freezer film

- Opportunity for up to 33% downgauging
- Maintained modulus despite downgauging
- Good dart and puncture resistance
- Improved hot-tack performance
- Excellent low temperature bag-drop performance
- Great melt strength for bubble stability



	Reference 60 µm	ExxonMobil solution 40 µm
Printable skins	C4-LLDPE LDPE	Exceed Tough+ m 0814 Exceed Flow m 0520
Core	C4-LLDPE LDPE	Exceed Tough+ m 0814 HDPE
Sealant skin	C4-LLDPE LDPE Exceed™ m 1018	Exceed Tough+ m 0814 Exceed Flow m 0520

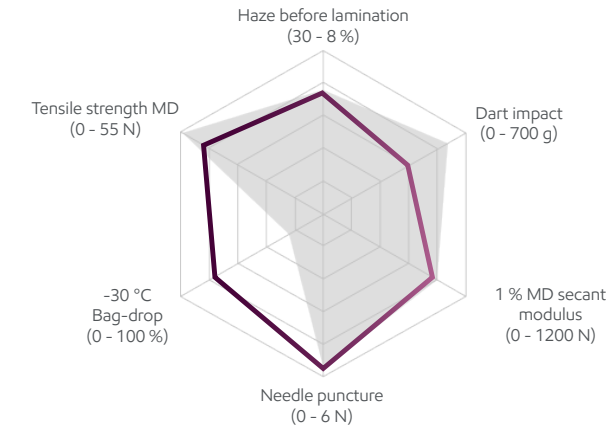
C4-LLDPE (density 0.918 g/cm<sup>3</sup>, melt index 1.0 g/10 min); LDPE (density 0.923 g/cm<sup>3</sup>, melt index 0.3 g/10 min); HDPE (density 0.961 g/cm<sup>3</sup>, melt index 0.7 g/10 min). All properties are measured after lamination with 12 µm OPET except for haze.



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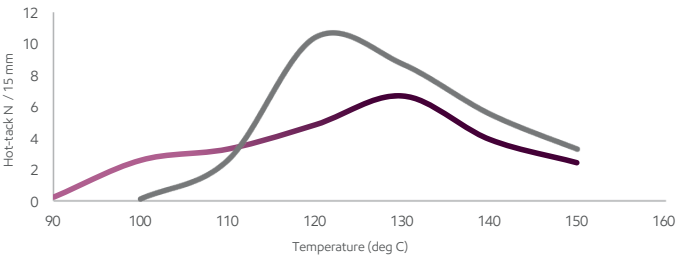
3-layer, 40 micron Exceed™ Tough+ and Exceed™ Flow laminated freezer film vs. a 3-layer, 60 micron HAO-rich laminated reference freezer film

- Opportunity for up to 33% downgauging
- Maintained modulus despite downgauging
- Similar puncture and tensile
- Excellent low temperature bag-drop performance
- Great melt strength for bubble stability



	Reference 60 µm	ExxonMobil solution 40 µm
Skins	C8-LLDPE LDPE	Exceed™ Tough+ m 0814 Exceed™ Flow m 0520
Core	C8-LLDPE LDPE	Exceed Tough+ m 0814 HDPE

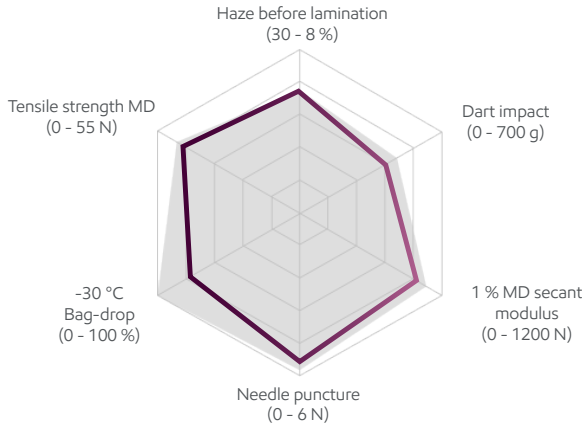
C8-LLDPE (density 0.920 g/cm<sup>3</sup>, melt index 1.0 g/10 min); LDPE (density 0.923 g/cm<sup>3</sup>, melt index 0.3 g/10 min); HDPE (density 0.961 g/cm<sup>3</sup>, melt index 0.7 g/10 min). All properties are measured after lamination with 12 µm OPET except for haze.



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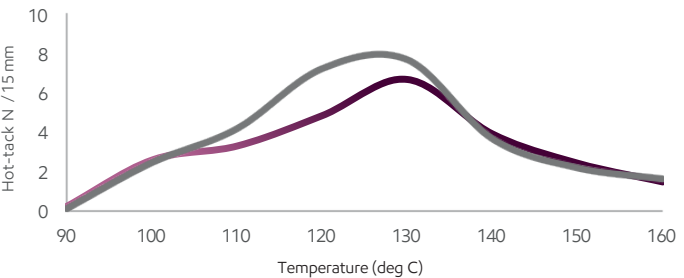
3-layer, 40 micron Exceed Tough+ and Exceed Flow laminated freezer film vs a 3-layer, 50 micron HAO-rich laminated reference freezer film

- Opportunity for up to 20% downgauging
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	Reference 50 µm	ExxonMobil solution 40 µm
Skins	C8-mLLDPE LDPE	Exceed Tough+ m 0814 Exceed Flow m 0520
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Test item	Based on test method
Tensile at break	ASTM D-882
1% Secant modulus	ASTM D-882
Dart impact	ASTM D-1709
Puncture resistance	CEN 14477 or ASTM D-5748
Hot-tack	ASTM F-1921
Gloss	ASTM D-2457
Haze	ASTM D-1003
-30 °C Bag-drop	ExxonMobil method

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Signature Polymers

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# 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, it is the names that change. Everything else remains the same. We will be making these modifications over the next six months so you will see both old and new grade names highlighted during that time.

Here's a quick overview of brands and grade names that have changed in this document:

Legacy commercial name	New commercial name
Exceed™ XP 8784	Exceed™ Tough+ m 0814
Exceed™ 1018	Exceed™ m 1018
Enable™ 2005	Exceed™ Flow m 0520

Some of our existing Exceed, Achieve, Paxon and premium PP/HD grades have moved to Exceed brand; most existing Enable grades have moved to Exceed Flow[+]; most of our existing Exceed Tough+ grades have moved to Exceed Tough[+]; most of our existing Exceed S grades have moved to Exceed Stiff[+]. More details here [https://www.exxonmobilchemical.com/en/brands/signature-polymers/exceed\\_high\\_performance\\_polymers](https://www.exxonmobilchemical.com/en/brands/signature-polymers/exceed_high_performance_polymers) or contact your ExxonMobil representative to know more.

Want to see what's changed in our portfolio? Go to [exxonmobilchemical.com/sptransform](https://www.exxonmobilchemical.com/en/brands/signature-polymers/exceed_high_performance_polymers)