



## Extreme performance greenhouse films

Exceed $^{\text{TM}}$  XP performance polymers offer a new benchmark for greenhouse and walk-in tunnel cover solutions that require extreme performance. This portfolio of products offers solutions to fabricate extremely damage-resistant, large lay-flat films that help farmers protect and grow their fruit, vegetables and flowers – throughout the year.









#### Exceed XP and other recommended products for greenhouse and tunnel films

Grades	Melt index (g/10 min)	Density (g/cm³)	Slip/anti- block	Distinguishing features for extreme performance
Exceed XP 6026ML	0.2	0.916	No	Exceptional melt strength and toughness Generally preferred for greenhouse and tunnel cover films
Exceed XP 6056ML	0.5	0.916	No	Outstanding extrudability, including on typical LDPE equipment
Exceed™ 1018	1.0	0.918	No	Tensile, impact strength, puncture and excellent drawability
Enable™ 2005MC	0.5	0.920	No	Outstanding balance between processing and film properties, including tensile, impact and puncture
Enable 2010MA	1.0	0.920	No	Offers balance between processing and film properties, including tensile, impact and puncture
Enable 2203MC	0.27	0.922	No	Outstanding balance between processing and film properties, including tensile, impact and puncture
Escorene™ Ultra EVA FL00112	0.50	0.934	No	High thermal insulation
Escorene Ultra EVA FL00014	0.25	0.938	No	Excellent bubble stability and high thermal insulation
Escorene Ultra EVA FL00018	0.37	0.940	No	Excellent bubble stability and high thermal insulation

#### High greenhouse film integrity

Exceed™ XP enables converters to easily fabricate exceptionally tough films with very high dart impact and puncture resistance, and tensile strength at break for high-integrity greenhouse and walk-in tunnel covers. The films also exhibit excellent aging performance for long lasting, durable solutions. Exceed XP allows the fabrication of extremely damage-resistant large lay-flat films of up to 26 m wide, typically 80-220 µm thick, that are ideal for greenhouse and walk-in tunnel covers. These tough films can withstand the rigors of installation and harsh, extreme weather.

#### Innovation opportunities

Sharing knowledge and implementing feedback helps us create differentiated, sustainable agricultural film solutions. By making extremely damage-resistant, extremely tough films possible, Exceed XP also opens the door for your further innovation opportunities such as downgauging or reduced film thickness while maintaining performance.

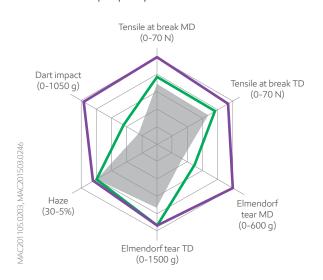
With Exceed XP, EVA and non-EVA film formulations can be easily tailored for seasonal requirements and for special applications, functions and climate conditions. With a broad operating window on a variety of extrusion equipment configurations, Exceed XP can withstand fluctuating manufacturing conditions, while ease of processing promotes greater bubble stability for stable, worry-free operations.

#### Cost optimization

Exceed XP performance polymers allow converters to increase output and optimize film formulations. Bubble stability and ease of extrusion optimizes solutions and delivers opportunities for high output. Exceed XP is designed to replace LLDPE/LDPE blends, reducing the number of resins that need to be sourced for lower inventory costs. Because formulations are simplified, blending complexity is minimized reducing the risk of costly errors. Exceed XP grade 6056ML can be extruded at lower melt temperatures, helping to deliver extrusion energy savings.

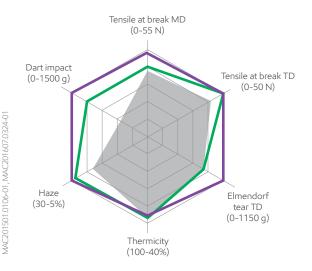
### Asia Pacific

Selected film property data for Exceed XP formulated non-EVA film and reference films.



	Melt index (g/10 min)	,	Exceed XP coextruded 3-layer 80 µm film	Enable coextruded 3-layer 80 µm film	Reference coextruded 3-laye 100 µm film (C4-LLDPE based
Exceed XP 6026	0.2	0.916	•		
Enable 2010	1.0	0.920	•	•	
Enable 2005	0.5	0.920			
ExxonMobil™ LDPE LD 165BW1	0.33	0.922		•	•
C4-LLDPE	1.0	0.918			•

Selected film property data for Exceed XP formulated EVA film and reference films.



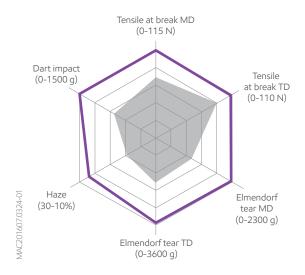
Exceed XP formulated EVA film and reference films						
	Melt index (g/10 min)	Density (g/cm³)	Exceed XP coextruded 3-layer 80 µm film	Enable coextruded 3-layer 80 µm film	Reference coextruded 3-layer 100 µm film	
Exceed XP 6056	0.5	0.916	•			
Enable 2010	1.0	0.920		•		
Escorene Ultra EVA FL00018 (17.5% VA)	0.37	0.940	•	•		
Escorene Ultra EVA FL 00112 (12% VA)	0.5	0.934	•	•		
EVA (12% VA)	0.8	-			•	
EVA (9.5% VA)	0.8	-			•	
LDPE	0.33	0.922			•	
C4-LLDPE	1.0	0.918		•	•	

Test methods based on: Tensile properties on film at room temperature - ASTM D882-02; Elmendorf tear strength - ASTM D1922-09; Impact resistance by free-falling dart (method A and B) - ASTM D1709; Thermicity (IR transmittance) - EM method; Density - ASTM D1505 and Melt index - ASTM D1238. Data from tests performed by or on behalf of ExxonMobil.



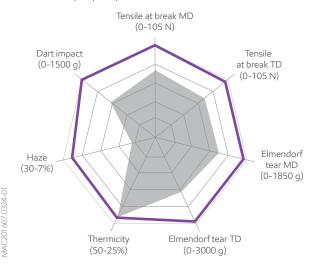
# Europe, Middle East, Africa and Americas

Selected film property data for Exceed XP formulated non-EVA film and reference film.



	Melt index (g/10 min)	Density (g/cm³)	Exceed XP coextruded 3-layer 160 µm film	Reference coextruded 3-layer 200 µm film (C8-LLDPE based)
Exceed XP 6026	0.2	0.916	•	
Exceed XP 6056	0.5	0.916		
Enable 2005	0.5	0.920	•	
LDPE	0.33	-		•
ExxonMobil™ LDPE LD150AC	0.75	0.923	•	
C8-LLDPE	1.0	0.920		•

Selected film property data for Exceed XP formulated EVA film and reference film.



Exceed XP form	cceed XP formulated EVA film and reference film				
	Melt index (g/10 min)	Density (g/cm³)	Exceed XP coextruded 3-layer 160 µm film	Reference coextruded 3-layer 200 µm film (C8-LLDPE based)	
Exceed XP 6026	0.2	0.916	•		
Escorene Ultra EVA FL000118 (17.5% VA)	-	-	•	•	
EVA (13% VA)	-	-		•	
LDPE	0.33	-		•	
ExxonMobil LDPE LD150AC	0.75	0.923	•		
C8-LLDPE	1.0	0.920		•	

Test methods based on: Tensile properties on film at room temperature – ASTM D882-02; Puncture resistance (new) – Instron – ASTM D5748; Elmendorf tear strength – ASTM D1922-09; Impact resistance by free-falling dart (method A and B) – ASTM D1709; Clarity – ASTM D-1746; Thermicity – ASTM E-1421; Density – ASTM 1505 and Melt index – ASTM 1238.

Data from tests performed by or on behalf of ExxonMobil.

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