

Value-added solution for extrusion coated PP woven sacks

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Manufacturers of polypropylene (PP) woven sacks are looking for improved package integrity and increased production efficiency while optimizing costs. The quality of the coating layer applied, plays an important role in achieving these objectives. The versatility of Vistamaxx™ performance polymers provides innovation opportunities when formulating this coating.

Key advantages

- Excellent inherent adhesion to PP woven
- Low seal initiation temperature (SIT) and controlled surface coefficient of friction (COF)
- Downgauging and cost reduction opportunities
- Outstanding compatibility with PE and PP
- Easy processing

Tailored coating properties for PP woven sacks

Because they are highly compatible, Vistamaxx polymers can be blended with polypropylene (PP) and polyethylene (PE), allowing the coating properties to be tailored to meet the needs of end-use applications. As a result, Vistamaxx polymers enable manufacturers to develop added-value products while offering downgauging and cost optimization opportunities.

Block bottom bags with a coating layer including Vistamaxx polymers exhibit excellent bag integrity with lower reject rates, reduced sealing temperature and material cost, while downgauging of 20–30% is possible.

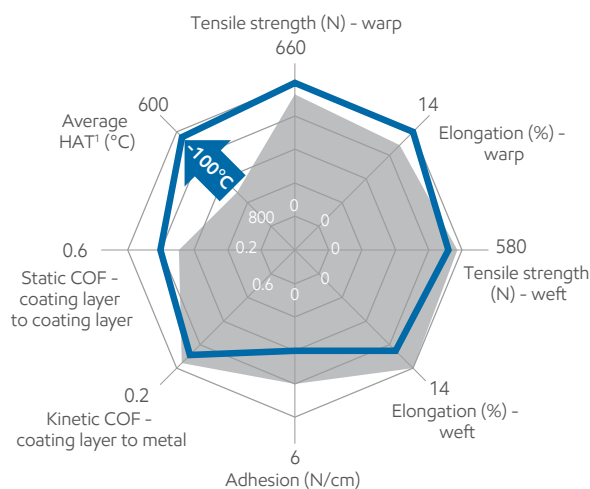
Using Vistamaxx polymers in the filler based coating layer of woven sacks offers a number of benefits compared to reference materials such as an LLDPE-based masterbatch. They deliver excellent adhesion and tensile strength for high sack integrity during and after stitching. Static coefficient of friction (COF) can be increased by as much as 14% for good anti-skid performance for better stacking stability during transportation and storage. A Vistamaxx polymer-based masterbatch allows drop-in processability for a smooth transition from using an LLDPE-based masterbatch. Cost reductions are possible because Vistamaxx polymers allow increased use of calcium carbonate filler for lower material costs, while adhesion strength is maintained.

Other PP woven sacks, including flexible intermediate bulk containers (FIBC), with a coating layer using Vistamaxx polymers exhibit excellent adhesion, anti-skid properties and lower material cost, while providing an opportunity to downgauge by about 17%.

Value added solutions for block bottom bags

To optimize costs, manufacturers of extrusion coated PP woven bags are looking to seal rather than stitch PP woven sacks. Vistamaxx™ performance polymers seal at significantly lower temperatures while providing extremely high seal strength. This provides opportunities to save energy on bag conversion lines, while avoiding thermal degradation of PP woven fabrics to reduce failure in use. Block bottom bags with a Vistamaxx polymer-based coating layer deliver excellent bag drop performance. Vistamaxx polymers can also optimize material consumption through the use of blends and downgauging.

Figure 1: Vistamaxx 3588FL-based coating layer for block bottom bag



Mechanical test data based on coated woven fabric without perforation
¹ Average (optimum) hot air temperature for valve, cover and bottom patches based on bag conversion production with 100 bag/min line speed.

60 gsm PP woven	Reference	Vistamaxx 3588FL-based
Coating weight	25 gsm	17 gsm
Formulation	85% Homo PP 15% LDPE	30% Vistamaxx 3588FL 55% Homo PP 15% LDPE

Test	Test method based on
Tensile Properties	EN ISO 13934 / DIN 53857
COF (film/film and film/metal)	ASTM D1894
Adhesion ¹	Third party method
Hot air temperature ¹	Third party method
Bag drop	DIN-EN 27965-1

¹ Data to be used only as comparative data

Manufacturers are turning to Vistamaxx polymers because they offer the following benefits in extrusion coated PP woven bags:

- Cost advantages by 30% downgauging
- Energy savings with an average hot air temperature reduction of up to 100°C
- Superior bag integrity with excellent adhesion strength
- Smooth bag conversion at high line speeds
- Easy processing with PP and PE
- Excellent value in use versus alternatives

Typical applications for extrusion coated PP woven bags include:

- polymers
- chemicals
- sugars
- cement
- pet foods
- rice and flour

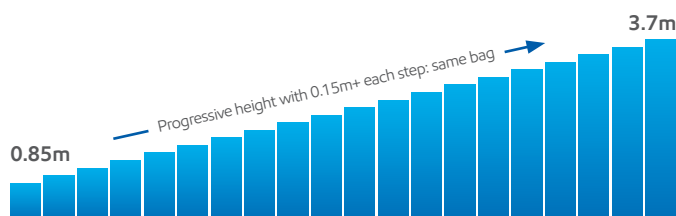
Figure 2: Bag drop performance for block bottom bag

Average failure height ¹	Flat drop ²	Bottom patch drop ³ (m)
Reference	No break at max. height	1.35*
30% Vistamaxx 3588FL-based	No break at max. height	1.38*



* No failure occurred in seal area

** 50kg cement bag - no break after 20 times flat drop



¹ Calculated based on average of broken height of 10 bags

² Turned the bag around after each drop

³ No turning of the bag between each drop

Properties	Test method based on	Vistamaxx 3588FL	Vistamaxx 3980FL	Vistamaxx 6202
MFR (230°C/2.16kg) [g/10min]	ASTM D1238	8	8	20
Vicat softening point (°C)	ExxonMobil method	103	76.7	47.2

Data from tests performed by or on behalf of ExxonMobil. These typical properties are not to be construed as specifications.

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