



BioLogiQ creates plastics from polysaccharides found in plants. These plastics are designed to enhance both the functional and environmental performance of the packages and products produced with them.

All BioLogiQ compounded plastics start with NuPlastiQ BioPolymer, a 100% natural, renewably sourced, plant-based biopolymer.

Description

- One of the BioBlend® XP family of high performance BioPolymers designed for blown film applications.
- BioBlend® XP 24550 is a masterbatch that contains 50% NuPlastiQ GP BioPolymer compounded with butene LLDPE.
- Made from 50% annually renewable agricultural resources.
- Supplied in pellet form.

Applications

- Used for final products requiring strength and plasticity such as bags, can liners, film wrap, packaging film, and liner film.

Properties

PHYSICAL	TEST METHOD	NOMINAL VALUE	UNITS
Density:	ASTM D792	1.16	g/cm ³
THERMAL			
Melt Flow Index	ASTM D1238	0.25	g/10 min (190 °C/5 kg)
Melting Temperature Range:	ASTM D3418	50 - 170	° C
ADDITIONAL INFORMATION			
Moisture Content: ⁽¹⁾	ASTM D6980	≤ 0.5	%
MECHANICAL PROPERTIES⁽²⁾			
Tensile Properties			
Secant Modulus @ 1%	ASTM D638	440	MPa
Tensile Strength at Break	ASTM D638	14	MPa
Elongation at Break	ASTM D638	32	%
Flexural Properties			
Flexural Modulus	ASTM D790	620	MPa
Notched Impact Strength			
Izod - Notched	ASTM D256	40	J/m
FILM PROPERTIES⁽³⁾			
Tensile Strength			
MD	ASTM D882	3400	psi
TD	ASTM D882	2700	psi
Elongation at Break			
MD	ASTM D882	690	%
TD	ASTM D882	740	%
Elmendorf Tear			
MD	ASTM D1922	200	g
TD	ASTM D1922	350	g
Dart Drop Test			
	ASTM D1709	100	g

Table Notes:

- 1) Moisture content was measured with an infrared moisture analyzer at 105°C for 10 minutes.
- 2) Mechanical properties were measured on injection molded parts made directly from the 50% NuPlastiQ / 50% polyethylene masterbatch.
- 3) The reported film properties are for a monolayer blown film that was let-down with 50% additional LLDPE to a concentration of 25% NuPlastiQ. The thickness was 1.0 mil, and the blow-up ratio was 2.5:1.
- 4) These values are typical properties only and should not be used for specification purposes. End users should confirm results with their own tests.

Processing Considerations

- XP 24550 is designed to be diluted with polyethylene to a final NuPlastiQ® content between 10% and 40%.
- XP 24550 can be run on existing process equipment with a few adjustments.
- Films made with NuPlastiQ are more sensitive to processing conditions such as temperature profile, residence time, die gap, and blow-up ratio. See the NuPlastiQ Film Processing Guide for additional information.
 - A typical recommended temperature profile will be in the 160°C – 190°C range.
 - Depending on equipment, process conditions, and residence time, as temperatures increase in this range the glycerin plasticizer may experience some volatilization. This may cause a slight odor and/or smoke and is expected under normal processing conditions. Always use proper ventilation. See the BioBlend® XP 24550 SDS for details.
- Some equipment (multi-layer, higher output, lower residence time) may allow for higher processing temperatures (190°C - 200°C).
- Melt temperatures above 205°C may cause material degradation, lensing and fish-eyes in the film.
- When extruder operation has to be stopped temporarily, it is recommended to purge the material in the barrel before resuming film processing.

Storage and Drying

- BioLogiQ BioBlends are dried after production and shipped in sealed moisture-proof bags that are ready to use as supplied. They should be stored indoors in the sealed container away from heat until used.
- If pellets are exposed to a humid environment, they will absorb moisture from the air. If needed, dry pellets by introducing warm dry air at no more than 80°C for 1-4 hours.
- The estimated moisture content of a BioLogiQ BioBlend can be measured with an infrared moisture analyzer at 105°C for 10 minutes. The result of the measurement will not perfectly equal the moisture content, due to possible partial evaporation of plasticizer. The result from this test should be <0.5% moisture prior to processing.