

VINNEX® 2525

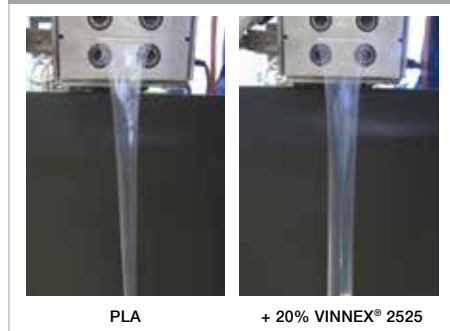
Improved Processing for Highly Transparent PLA Films

Polylactic acid (PLA) is currently the most important biopolymer for producing biobased/biodegradable transparent films. The material is highly transparent, has an appealing gloss and biodegrades under typical industrial composting conditions. Nevertheless, current mechanical and processing properties of PLA are still hampering replacement of bulk thermoplasts. With VINNEX® 2525, WACKER offers a novel modifier that can considerably improve PLA processing performance in transparent film applications, making it a better substitute for conventional plastics.

VINNEX® 2525 Improves Processing Properties

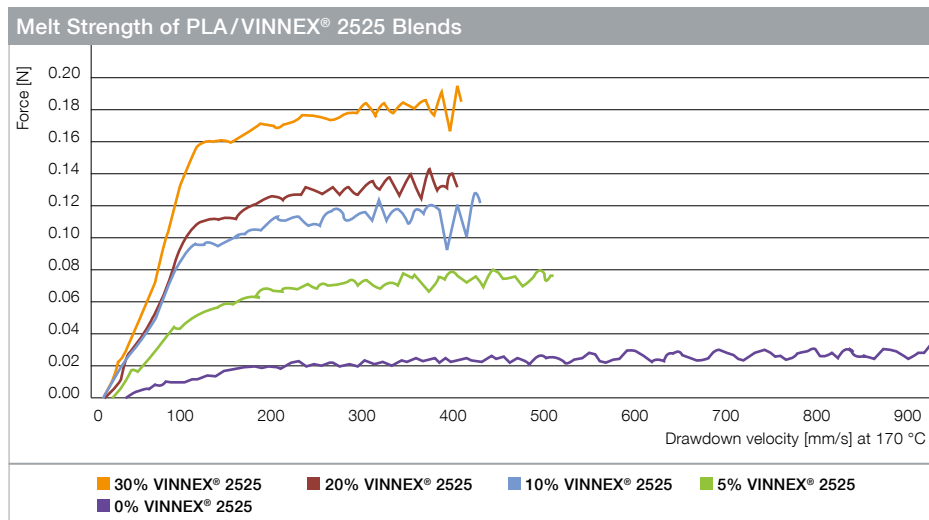
Conventional PLA has a relatively low melt strength which can cause problems during blown film extrusion, cast film extrusion and thermoforming. Addition of VINNEX® 2525 increases melt strength resulting in a very stable bubble during blown film extrusion. It also reduces necking during cast film extrusion and improves the stretch factor in thermoforming processes. Furthermore, VINNEX® 2525 enables a reduction of the processing temperature of about 10 °C compared to standard PLA.

PLA/VINNEX® 2525 Blends have Improved Melt Strength



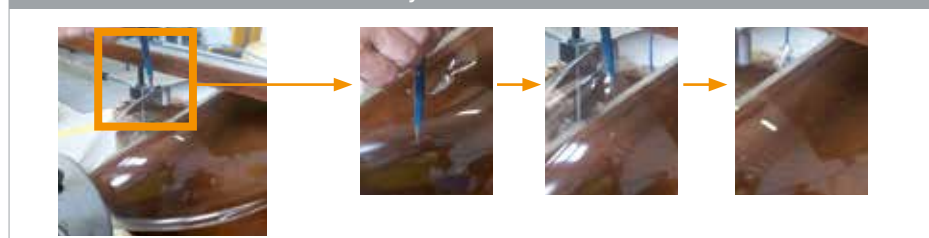
Properties of VINNEX® 2525	
Composition	Vinyl acetate homopolymer
Form	Beads
Tg [°C]	44
Density [kg/m³]	1,180
Bulk density [kg/m³]	700–850
MFR melt index* [ccm/10 min]	15.4
Use level [%]	5–20
Food contact	Suitable**

Tg = Glass transition temperature
 * MFR melt index measured at 150 °C/21.6 kg/2 mm
 ** VINNEX® 2525 is suitable for food contact according to Bfr (Federal Institute for Risk Assessment) and FDA (US Food and Drug Administration, §175.105, §175.300, §176.170 and §176.180)



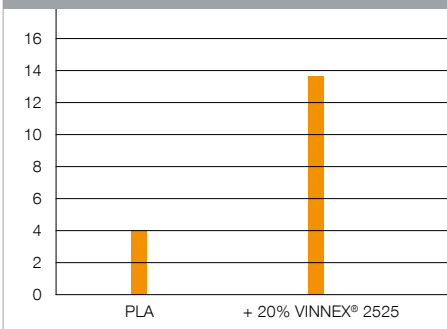
Source: Fraunhofer ICT

PLA/VINNEX® 2525 Blends Form a Very Stable Bubble



PLA/VINNEX® 2525 blend was used for blown film extrusion. Increase in melting strength through addition of VINNEX® 2525 results in a very stable bubble. Stability is demonstrated by punctuating the bubble with a pencil. No collapse even after removal of pencil.

Improved Heat Sealing Properties of PLA/VINNEX® 2525 Blends



Seal bond strength of PLA films and PLA/VINNEX® 2525 blends was determined after heat sealing at 100 °C and 1.5 bar for 1 second.



VINNEX® 2525 Improves Sealability of PLA Films

Sealing of conventional PLA films is difficult and results in weak seal bond strength. Addition of VINNEX® 2525 can improve sealability both in heat sealing and ultrasonic sealing on various substrates.

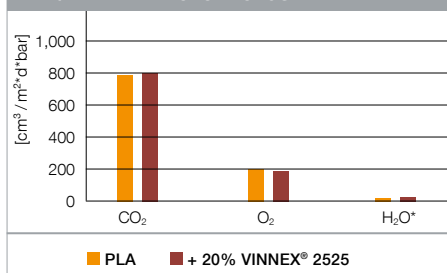
VINNEX® 2525 Maintains High Transparency

A major advantage of PLA, especially in packaging film applications, is its high transparency and appealing gloss. PLA/VINNEX® 2525 blends maintains the very high gloss and transparency.

VINNEX® 2525 Maintains Permeability

PLA has unique permeability properties for CO₂, O₂ and water vapor which makes it particularly interesting as a functional packing film for fresh fruit, vegetables and bread. PLA/VINNEX® 2525 blends have considerably improved mechanical properties, but permeability properties remain largely unchanged.

Maintained Permeability of PLA/VINNEX® 2525 Blends



* H₂O = water vapor permeation

VINNEX® Maintains Biodegradability

Various blends of biopolymers with VINNEX® resins have already passed the industrial composting test (ISO 14855 of EN 13432). As for every bioplastic compound, biodegradation is largely dependent on the respective formulation and has to be determined case by case. For more detailed information, please refer to our technical service.

At a Glance: Advantages of VINNEX® 2525

- Recommended for cast and blown film extrusion
- Increased melt strength
- Improved bubble stability in blown film extrusion
- Reduced necking in cast film extrusion
- Improved stretch factor in thermoforming processes
- Improved film sealing properties
- Good shrink behaviour of PLA is maintained
- High transparency and gloss is maintained
- Gas permeability is maintained
- Biodegradability is maintained
- Suitable for food contact applications

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