WACKER

CREATING TOMORROW'S SOLUTIONS

GENIOPLAST®

VINNEX®

BIOPLASTICS I PERFORMANCE ADDITIVES

BIOPOLYMERS THAT STAND UP TO EVERYDAY DEMANDS

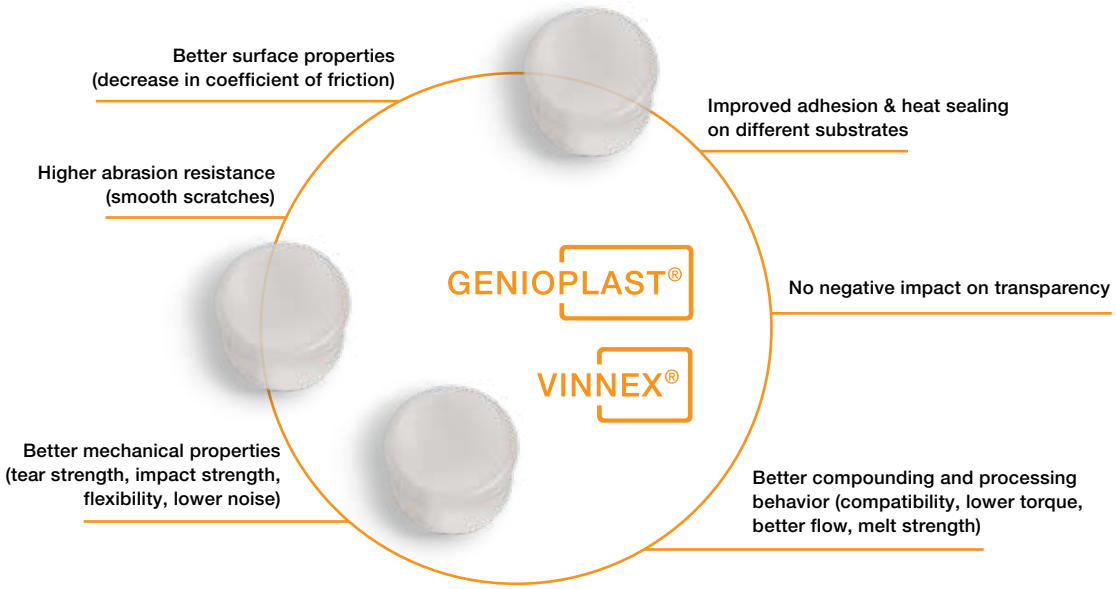
VINNEX® AND GENIOPLAST® – A WINNING COMBINATION

The Future Belongs to Bioplastics

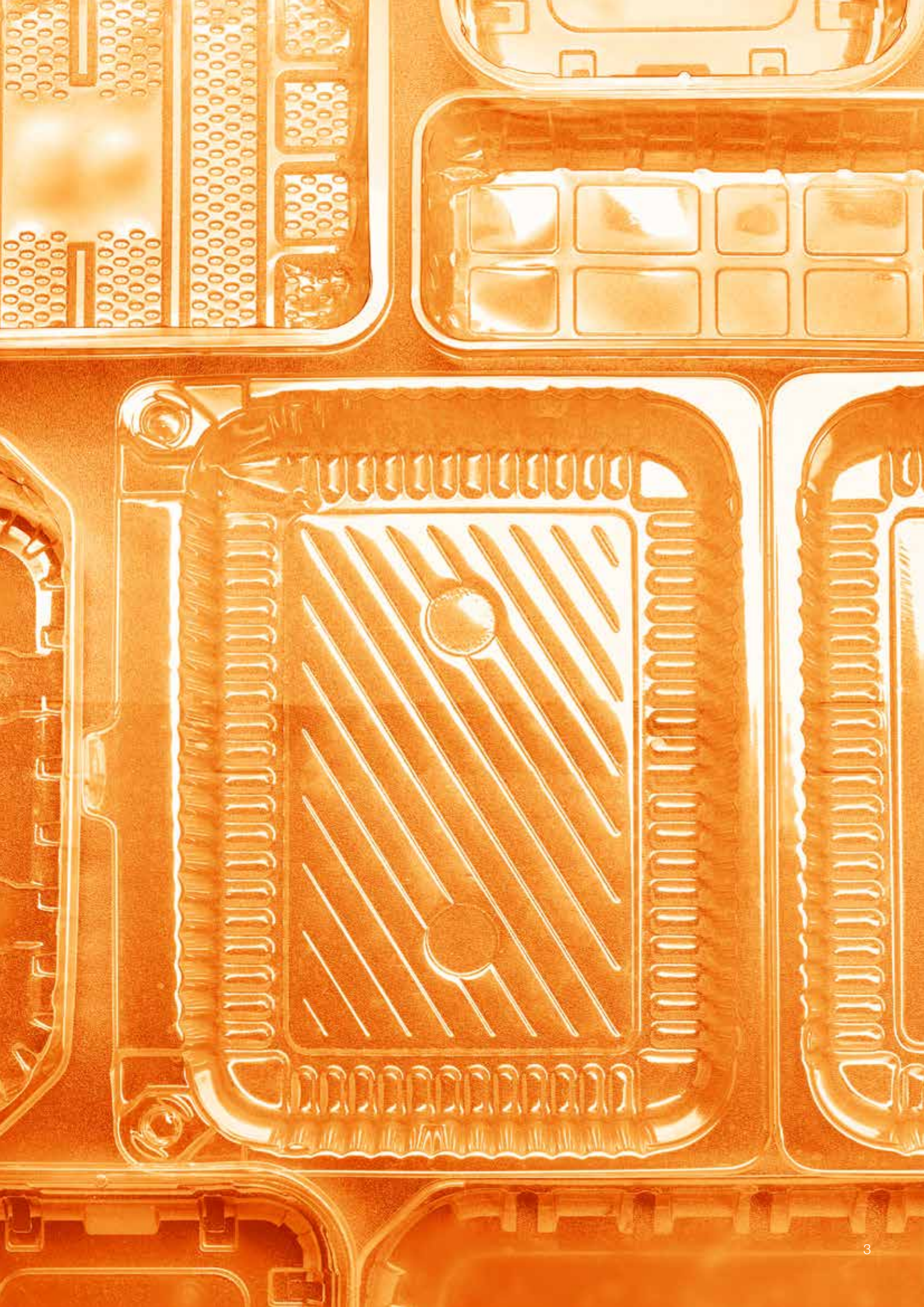
Because they are based on renewable raw materials, bioplastics minimize your ecological footprint. And if they are biodegradable, they prevent waste too. Unfortunately, the quality of biodegradable plastics has not always been satisfactory, but that has now changed. By incorporating VINNEX® and GENIOPLAST® additives, you can significantly improve the mechanical properties of thermoplastic biopolymers – initially making them more efficient to process and ultimately creating an end product with a long shelf life.

Two Additives – One Powerful Combination

Poly(vinyl acetate)-based VINNEX® and silicone-based GENIOPLAST® Pellet S and Pellet P Plus work together to improve the performance of filled and unfilled bioplastics.



The examples cited in this brochure are two frequently used biopolymers (PLA and PBS), which we have tested in combination with GENIOPLAST® Pellets and two grades of VINNEX®. We would be happy to study additional combinations upon request.



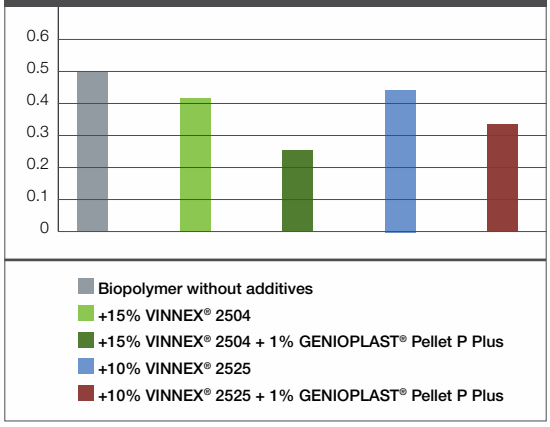
EFFICIENT PROCESSING

A blend of VINNEX® and GENIOPLAST® additives makes thermoplastic bioplastics noticeably easier to process. Their addition prevents extrusion die drool, for instance, allowing you to reduce nozzle pressure and decrease torque.

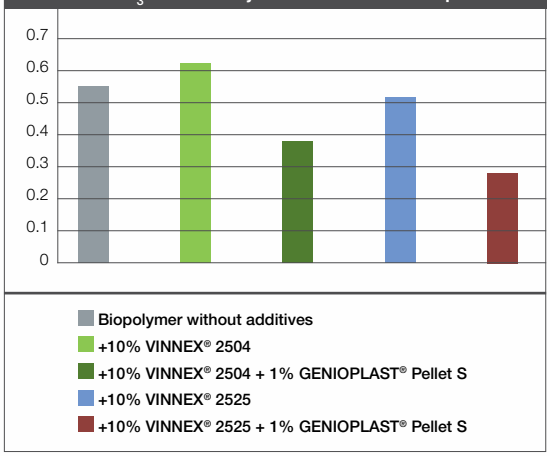
Significantly Lower Coefficient of Friction

If the VINNEX® concentration is 10% to 15%, incorporation of just 1% GENIOPLAST® Pellets is all it takes to notably reduce the coefficient of friction (dark green and red bars).

Coefficient of Friction: PLA Ingeo™ 4043 Unfilled – Injection Molded Plaques



Coefficient of Friction: BioPBS™ FZ91PM +15% $CaCO_3$ Filled – Injection Molded Plaques



TRANSPARENT RESULTS

VINNEX® at a concentration of 10% to 15% with 1% GENIOPLAST® noticeably improves the mechanical properties of biopolymers, while leaving the transparency of the packaging or films intact. As test series have shown, a 1% addition of GENIOPLAST® Pellets has no negative impact on the transparency of filled or unfilled bioplastics.

Material A: PLA Ingeo™ Biopolymer 4043 D (Unfilled) Blended with …

VINNEX® 2504 powder and GENIOPLAST® Pellet P Plus			VINNEX® 2525 resin and GENIOPLAST® Pellet P Plus	
				
Unfilled	+15% VINNEX® 2504	+15% VINNEX® 2504 + 1% GENIOPLAST® Pellet P Plus	+10% VINNEX® 2525	+10% VINNEX® 2525 + 1% GENIOPLAST® Pellet P Plus

Material B: BioPBS™ FZ91PM (Filled) Blended with …

VINNEX® 2504 powder and GENIOPLAST® Pellet S			VINNEX® 2525 resin and GENIOPLAST® Pellet S	
15% $CaCo_3$ filled	+10% VINNEX® 2504	+10% VINNEX® 2504 + 1% GENIOPLAST® Pellet S	+10% VINNEX® 2525	+10% VINNEX® 2525 + 1% GENIOPLAST® Pellet S

Material A

Unfilled biodegradable PLA

Dosage

15% VINNEX® 2504 + **1%** GENIOPLAST® Pellet P Plus

10% VINNEX® 2525 + **1%** GENIOPLAST® Pellet P Plus

Material B

Filled biobased (biodegradable in soil) PBS

Dosage

10% VINNEX® 2504 + **1%** GENIOPLAST® Pellet S

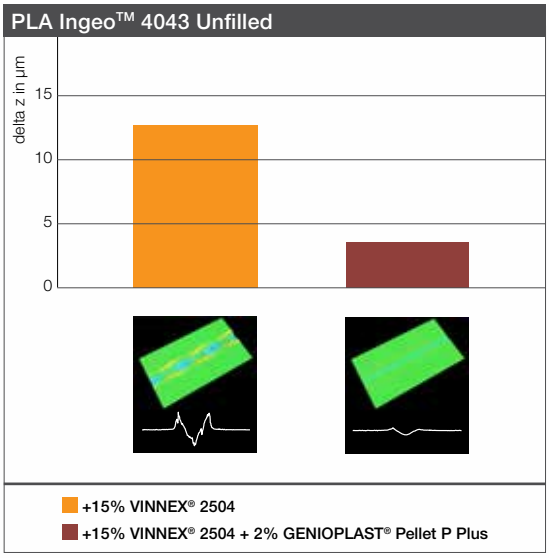
10% VINNEX® 2525 + **1%** GENIOPLAST® Pellet S

Key Benefit

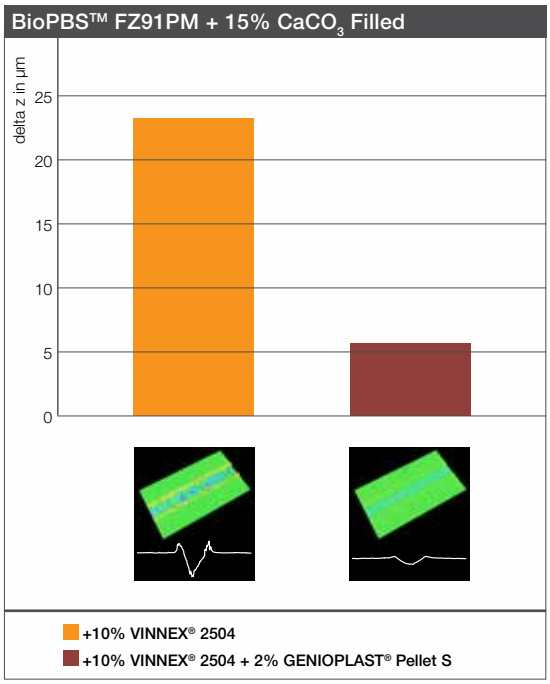
Transparency is unaffected

SURFACE PROTECTION

The combination of VINNEX® and GENIOPLAST® additives makes bioplastics vastly more resistant to scratching and abrasion, significantly reducing the risk of damage from transportation and storage. A 2% addition of GENIOPLAST® Pellets is sufficient when the concentration of VINNEX® is 15%.



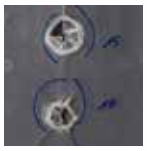
Scratch depth of PLA Ingeo™ Biopolymer 4043 D (unfilled) blended with VINNEX® 2504 powder and GENIOPLAST® Pellet P Plus



Scratch depth of BioPBS™ FZ91PM + 15% $CaCO_3$ (filled) blended with VINNEX® 2504 powder and GENIOPLAST® Pellet S

Surface stability of biopolymers can likewise be significantly improved through the use of VINNEX® and GENIOPLAST®. The additive blend primarily increases impact resistance, allowing the material to better absorb the energy of shocks and impacts. If the concentration of VINNEX® is 15%, this effect can be achieved with just a 1% addition of GENIOPLAST® Pellets.

Material A: PLA Ingeo™ Biopolymer 4043 D (Unfilled) Blended with …

	VINNEX® 2504 powder and GENIOPLAST® Pellet P Plus			VINNEX® 2525 resin and GENIOPLAST® Pellet P Plus	
				
Unfilled	+15% VINNEX® 2504	+15% VINNEX® 2504 + 1% GENIOPLAST® Pellet P Plus	+10% VINNEX® 2525	+10% VINNEX® 2525 + 1% GENIOPLAST® Pellet P Plus

Material B: BioPBS™ FZ91PM (Filled) Blended with …

	VINNEX® 2504 powder and GENIOPLAST® Pellet S			VINNEX® 2525 resin and GENIOPLAST® Pellet S	
				
15% $CaCo_3$ filled	+10% VINNEX® 2504	+10% VINNEX® 2504 + 1% GENIOPLAST® Pellet S	+10% VINNEX® 2525	+10% VINNEX® 2525 + 1% GENIOPLAST® Pellet S

Let's Find the Perfect Blend Together

Please contact us if you would like to use bioplastics other than PLA and PBS. We will be happy to test your desired combination.

Material A

Unfilled biodegradable PLA

Dosage

15% VINNEX® 2504 + **1%** GENIOPLAST® Pellet P Plus

10% VINNEX® 2525 + **1%** GENIOPLAST® Pellet P Plus

Material B

Filled biobased (biodegradable in soil) PBS

Dosage

10% VINNEX® 2504 + **1%** GENIOPLAST® Pellet S

10% VINNEX® 2525 + **1%** GENIOPLAST® Pellet S

Key Benefit

Improved impact resistance

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7894e/11.21 replaces 7894e/09.21