

WACKER

CREATING TOMORROW'S SOLUTIONS



GENIOPLAST®

PLASTICS | PERFORMANCE ADDITIVES

**GIVE YOUR
WOOD-PLASTIC COMPOSITES
A NEW SHAPE**



GENIOPLAST® MASTERBATCHES FOR WPCs

The market for wood-plastic composites (WPCs) is growing fast. One reason is that these innovative materials comply with two important modern trends: they are sustainable solutions consisting of up to 75% renewable wood fibers and require almost no additional maintenance after installation. With GENIOPLAST® Masterbatches for WPCs, we offer a very functional way to further enhance the durability and quality of WPCs while reducing production costs.

GENIOPLAST® Masterbatches for WPCs contain a silicone copolymer that is especially compatible with organic polymers like polypropylene (PP), providing the materials with silicone properties. In WACKER's GENIOPLAST® Masterbatches for WPCs, the silicone copolymer is already combined with the organic polymer matrix, providing a ready-to-use additive.

Typical General Characteristics¹ of GENIOPLAST® PP20A08

Density at 25 °C, at 1,013 hPa	0.923 g/cm ³
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Organic matrix resin	Polypropylene, MI 4
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Active content	20%
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Suggested use level	0.5 – 2%
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Appearance and color	White granules
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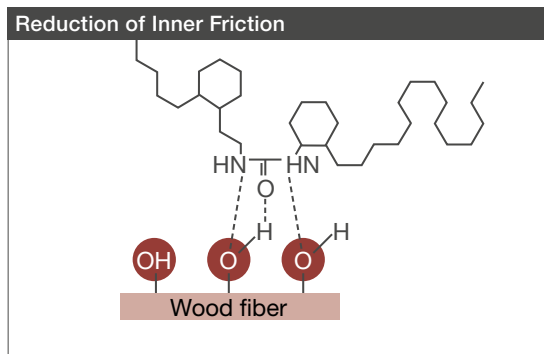
¹ These figures are only intended as a guide and should not be used in preparing specifications.



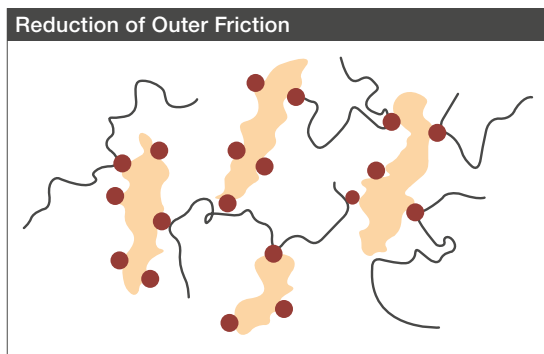
UPGRADE THE PERFORMANCE OF WOOD-PLASTIC COMPOSITES

Better Processability

GENIOPLAST® Masterbatches for WPCs influence the inner and outer friction of the WPC and increase wall slip behavior. Compared to organic additives like stearates or PE waxes, throughput can be increased.



The polar urea group is attached via hydrogen bonding to the polar parts of the cellulose fiber and reduces inner friction.



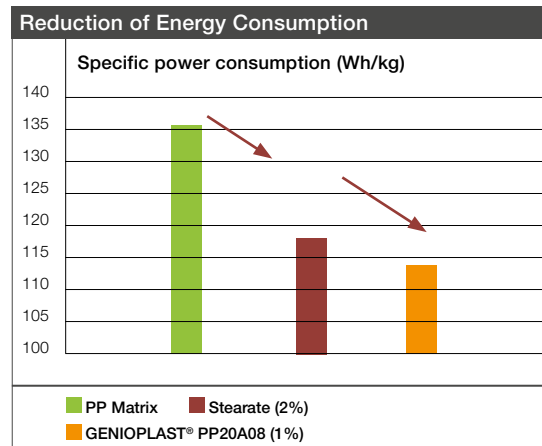
The silicone chain is an excellent slip agent between WPC compound and extruder wall.

Less Energy Consumption

Thus, GENIOPLAST® Masterbatches for WPCs significantly reduce energy consumption.

Lower Formulation Cost

This higher throughput can be realized with significantly less additive content, namely with 1% GENIOPLAST® PP20A08 compared to 2.5% of organic additives like stearates or PE waxes. This also makes a higher wood content possible.



(Source: wood-k-plus, 60% wood flour, 2% coupling agent, 1% GENIOPLAST® MB (2% stearate), 37/36% PP/HDPE)



Additive
GENIOPLAST® PP20A08



Suggested Use Level
0.5 – 3%



Applications

- Deckings (primarily outdoors)
- Furniture
- Design accessories



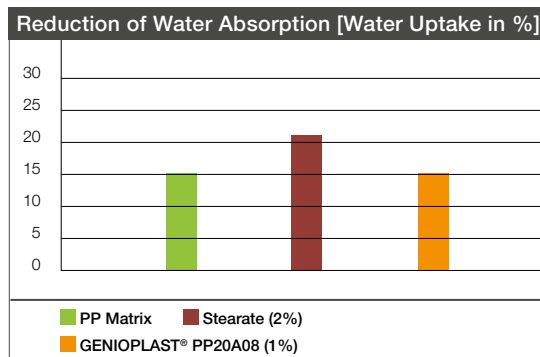
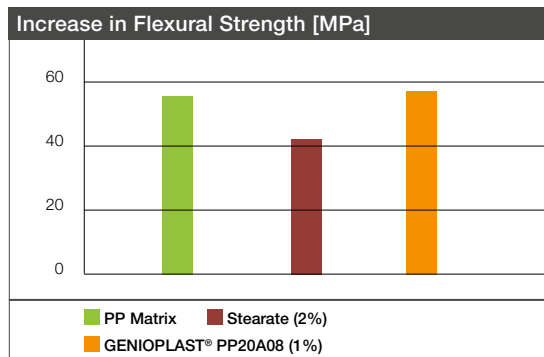
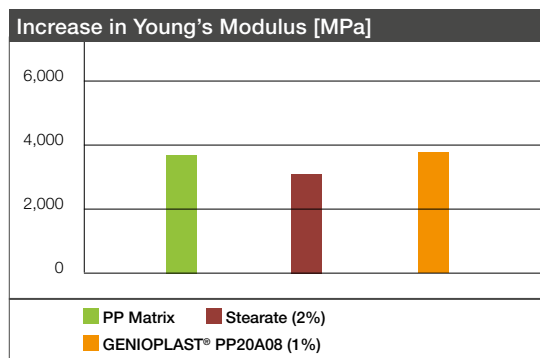
Key Benefits

- Ready-to-use masterbatch
- Higher output in extrusion process
- Minimized additive level
- WPCs less expensive to produce
- Improved physical and mechanical properties
- Better quality of finished goods
- Improved scratch resistance
- Reduced water uptake




Very Good Mechanical Properties

Adding GENIOPLAST® PP20A08 improves the quality of WPCs in a number of respects:

- 20% increased Young's modulus for higher load capacity
- Higher flexural strength for enhanced durability
- Over 30% less water uptake for less swelling of final products
- Drastically increased scratch resistance of extruded profiles



Standard fluidizers increase the water absorption of WPCs (28 days' storage in water).

Improved Scratch Resistance			
	Reference	Competitor 1	WACKER
Additive (processing aid)		Process additive 2%	GENIOPLAST® PP20A08 1%
Delta L	0.9	4.2	0.6
			

The Erichsen scratch test shows: adding GENIOPLAST® Masterbatches leads to better scratch resistance in comparison with competitive process additives (Erichsen scratch test). The depth of the scratch is not as severe and the surface of the damaged area is much smoother compared to the control samples.



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