

PRESS RELEASE

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Compounding World Expo 2021

Highly Effective Additive Combination for Biodegradable Plastics

Munich, September 27, 2021 – WACKER, the Munich-based chemical group, is showcasing two products for processing biodegradable plastics at the Compounding World Expo 2021: its VINNEX® additive system based on polyvinyl-acetate technology and its silicone-based performance additive GENIOPLAST® for many thermoplastics. Both additives enhance the processing and material properties of bioplastics. VINNEX® furthermore ensures hassle-free mixing of different biopolyesters and fillers. Latest tests show that the two additives can also be readily combined. The benefits here are optimally adjusted processing and product properties and even higher effectiveness. WACKER will present the test findings for the first time at the Compounding World Expo 2021, which runs from September 29 to 30 in Essen, Germany.

WACKER's applications engineers who carried out the screening chose the biopolyesters polylactic acid and polybutylene succinate as representatives of biodegradable plastics. While biopolyesters are, in principle, considered alternatives to conventional thermoplastics, they are difficult to process and require suitable additives to achieve the property profile customary of thermoplastics. The

additives examined were VINNEX® 2504, VINNEX® 2525, GENIOPLAST® Pellet S and GENIOPLAST® Pellet P plus.

The key finding of the screening is the observation that VINNEX® and GENIOPLAST® complement each other in their effects – in both filled and unfilled bioplastic systems. When used together, the processing and performance properties of bioplastics can be optimally adapted to the specific requirements. But there is also another advantage: both additives are more effective when they are used in combination than when they are used separately. Depending on the grade used, VINNEX® either has a particularly positive influence on the polymer melt or the mechanical properties. The additive ensures that bioplastics can be processed without difficulty. Mixed in with VINNEX®, GENIOPLAST® primarily affects the surface properties of the plastic item, especially in filled systems.

In the bioplastic samples that were tested, GENIOPLAST® acts as a booster and enhances the effects achieved with the VINNEX® additive which had been previously added. In several cases, the silicone additive also improves properties that VINNEX® has no influence on. It is the addition of GENIOPLAST®, for instance, that reduces surface friction, thus increasing the bioplastics' scratch and abrasion resistance. This was verified by examination of the depth and roughness of scratches with a confocal microscope.

The unique additive combination furthermore improves the mechanical properties of the final good. Used together, VINNEX® and GENIOPLAST® boost the flexibility and impact strength of bioplastics and, in filled systems, increase elongation at break without impairing

thermostability. Plastics modified in this way are thus suitable for applications previously reserved for conventional thermoplastics.

When added in the usual amounts and depending on the individual system, VINNEX® and GENIOPLAST® additives do not hamper the degradability of biopolyesters such as polybutylene succinate, polylactid acid or thermoplastic starch and combinations of these biodegradable polymers.

VINNEX® and GENIOPLAST® Pellet

VINNEX® additives were specifically developed for modifying biopolyesters and starches. These homopolymers, copolymers and terpolymers are based on polyvinyl acetate. The following grades will be presented at the Compounding World Expo 2021:

- VINNEX® 2504 is a powder-form polyvinyl acetate-polyethylene copolymer. As a soft plastic, it increases the impact strength of bioplastics. Unfilled polylactic acid modified with VINNEX® 2504 is opaque.
- VINNEX® 2525, a resin available in granular form, is a polyvinyl acetate homopolymer. It acts as a production aid. Biopolyesters modified with VINNEX® 2525 are particularly suitable for producing packaging films by blown film extrusion. The additive leaves unfilled polylactic acid highly transparent.

GENIOPLAST® Pellet S and GENIOPLAST® Pellet P plus are silicone-based plastic additives in pellet form. Both grades are universally suitable for compounding all thermoplastics. As active component, they contain a non-crosslinked ultra-high-molecular

silicone polymer mounted on pyrogenic silica. GENIOPLAST® Pellet P plus is approved for food contact and GENIOPLAST® Pellet S is the respective grade for technical applications. Both grades reduce friction. They thus act as production aids and enhance the plastic's end properties.

Visit WACKER at Compounding World Expo, Booth A506.

Note:

WACKER will also present its additive combination VINNEX® and GENIOPLAST® Pellet for biodegradable plastics at European Bioplastics Conference on December 1, 2021, in Berlin, Germany.

<https://www.european-bioplastics.org/events/eubp-conference/>



An ideal combination for bioplastics processors: the VINNEX® additive based on polyvinyl acetate technology and silicone-based performance additive GENIOPLAST® for thermoplastics and engineering plastics. WACKER will present both products at this year's Compounding World Expo in Essen, Germany (photo: WACKER).





WACKER's silicone-based performance additive GENIOPLAST® for thermoplastics and engineering plastics (on the left) and the VINNEX® additive system based on polyvinyl acetate technology enhance the processing and material properties of bioplastics significantly. WACKER will display novel test results at the Compounding World Expo 2021 (photo: WACKER).

Note:

These photos are available for download at:
<http://www.wacker.com/pressreleases>

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The company in brief:

WACKER is a global chemical company with some 14,300 employees and annual sales of around €4.69 billion (2020).

WACKER has a global network of 26 production sites, 23 technical competence centers and 52 sales offices.

WACKER SILICONES

Silicone fluids, emulsions, rubber grades and resins; silanes; pyrogenic silicas; thermoplastic silicone elastomers

WACKER POLYMERS

Polyvinyl acetates and vinyl acetate copolymers and terpolymers in the form of dispersible polymer powders, dispersions, solid resins and solutions

WACKER BIOSOLUTIONS

Biotech products such as cyclodextrins, cysteine and biologics, as well as fine chemicals and PVAc solid resins

WACKER POLYSILICON

Polysilicon for the semiconductor and photovoltaic industries