

## VINNAPAS® eco C 501 & VINNAPAS® eco 8251

The first PVAc solid resins produced with renewable raw materials in the value chain via the mass balance approach.

Replacing fossil with renewable raw materials in matrix resins is becoming an increasingly important issue in the global composite industry. With VINNAPAS® eco C 501 and 8251, composite formulators now have renewable alternatives to conventional fossil-based low-profile additives. In VINNAPAS® eco C 501 and 8251, fossil raw materials are substituted with certified sustainable raw materials in the value chain.

### VINNAPAS® eco:

#### Certified for More Sustainability

VINNAPAS® eco solid resins are chemically identical to conventional VINNAPAS® solid resins. The only difference is that raw materials in the VINNAPAS® eco product line are replaced with renewable raw materials, based on the mass balance approach. For VINNAPAS® eco C 501 and 8251, this is audited according to the REDcert<sup>2</sup> certification scheme by TÜV Nord. The certification offers transparency and trust by ensuring that

- renewable raw materials used must be certified according to recognized international standards and
- the amounts of certified products sold are not proportionally higher than the amounts of certified raw materials that were purchased.

#### For a Lower Product Carbon Footprint (PCF)

Always in comparison to the conventional VINNAPAS® products, VINNAPAS® eco C 501 and 8251 have

- a more than 35% lower PCF (excluding biogenic carbon) and
- a more than 85% lower PCF (including biogenic carbon)

based on a cradle-to-gate approach.

### VINNAPAS® eco C 501 and 8251:

#### Easy to Use

Since VINNAPAS® eco C 501 and 8251 have the same properties as VINNAPAS® C 501 and LL 8251, they can readily be used as drop-in replacements in any existing formulation or in the development of new recipes, e.g. in combination with bio-based UP resins and natural fibers. Customers receive a REDcert<sup>2</sup> certificate stating the fossil resources saving nature of the product.

#### Excellent Shrink Compensation

VINNAPAS® eco C 501 and 8251 are copolymers of vinyl acetate and crotonic acid. Both grades can be used as efficient low-profile additives in a wide range of composite processes such as SMC, BMC, RTM or pultrusion.

VINNAPAS® eco C 501 is particularly suitable for Class A BMC/SMC applications with the highest surface smoothness and gloss. VINNAPAS® eco 8251, on the other hand, offers a very low

solution viscosity, making this grade an ideal choice for modern low-styrene and styrene-free composite formulations.

VINNAPAS® eco 8251 also enables formulators to incorporate a higher loading of fibers and fillers to enhance mechanical performance.

Last but not least, both grades can be blended in any ratio, allowing customers to adjust formulation viscosity over a very broad range, depending on their specific needs.



Typical General Characteristics	VINNAPAS® eco 8251	VINNAPAS® eco C 501
Viscosity, 10% in ethyl acetate [mPas]*	2.0–2.3	7.5–9.5
Acid number [mg KOH/g]	6.0–9.0	6.0–9.0
Molecular weight SEC [g/mol]	30,000	135,000
Viscosity, 40% in styrene [mPas]**	300	6,500
Viscosity, 50% in styrene [mPas]**	1,200	50,000
Viscosity, 40% in 1,4-BDDMA [mPas]**	4,000	N.d.

\* ASTM D 445-06 [mPas]

\*\* Brookfield RVT, 23 °C, 20 RPM

Typical Properties of BMC/SMC Moldings with VINNAPAS® eco 8251 and VINNAPAS® eco C 501	
Gloss	~ 90
Linear shrinkage in %	< 0.05
Flexural E-modulus in MPa	~13,000

# LESS FOSSIL RAW MATERIALS: THE VINNAPAS® eco PRODUCT CONCEPT

**WACKER intends to achieve net zero with sustainable products by 2045. And even by 2030, 100% of our products should be making a neutral or positive contribution to sustainability. One milestone along this route is the replacement of fossil raw materials using the mass balance approach. This allows us to use renewable raw materials in existing production processes.**

### Renewable Raw Materials are Diverse

Renewable raw materials may derive from different sources:

- biomass
- recycling processes
- carbon dioxide

Currently, we use bio-based acetic acid as one of our main building blocks for the manufacture for VINNAPAS® eco C 501 and LL 8251. But we are working on extending our raw material base to reduce dependency on fossil resources and address the needs of our customers. The changing raw material base can frequently lead to updates of the resulting PCF-value of our eco-products.

### Clear Target: Lower PCF

Substituting raw materials from fossil resources with renewable raw materials in our value chain according to the REDcert<sup>2</sup> mass balance approach allows our VINNAPAS® eco binders to carry the label "fossil resources saving product".

### A Small Step with a Big Impact

By substituting fossil raw materials with renewable raw materials according to the mass balance approach, we can immediately increase the proportion of renewable raw materials in our production.

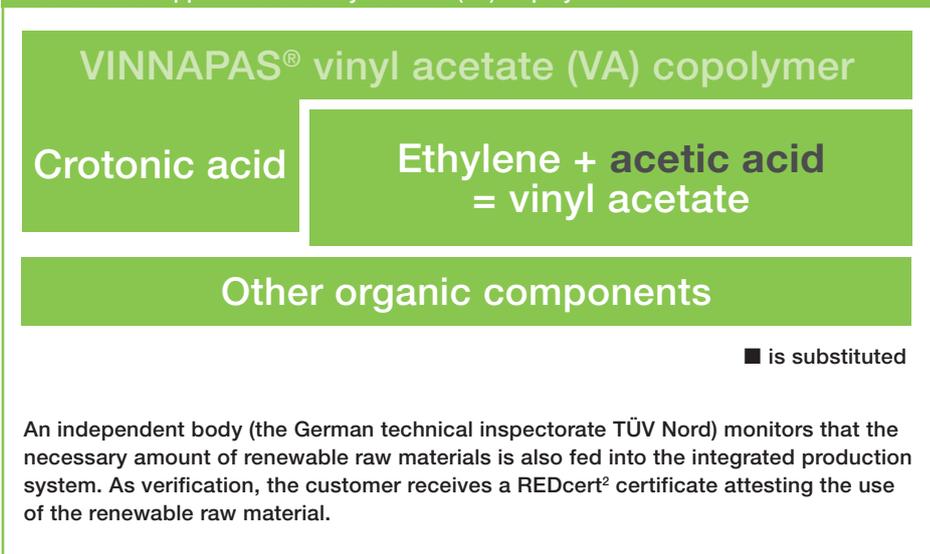
The same applies to our customers:

The certified VINNAPAS® eco product can already replace the corresponding VINNAPAS® product. This means:

**The more VINNAPAS® eco products manufactured, the higher the proportion of renewable raw materials in our production and on the market.**

We have currently certified some of our main polymer dispersions, dispersible polymer powders and resin products using this approach. And in the future we will be able to produce and certify also other products in the VINNAPAS® range as sustainable alternatives. Talk to us!

### Mass Balance Approach for a Vinyl Acetate (VA) Copolymer



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