

VINNAPAS® eco C 501 & VINNAPAS® eco 8251

THE FIRST PVAC SOLID RESINS BASED ON RENEWABLE RAW MATERIALS VIA THE BIOMASS BALANCE APPROACH

Replacing fossil with renewable raw materials in matrix resins is an increasingly important topic in the global composite industry. With VINNAPAS® eco C 501 and 8251, composite formulators now also have grades to replace conventional fossil-based low-profile additives. VINNAPAS® eco C 501 and 8251 come with a 100% substitution of fossil raw material with sustainably certified renewable 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 the raw materials in VINNAPAS® eco are entirely replaced with renewable raw materials, based on the biomass balance approach. For VINNAPAS® eco C 501 and 8251, this is audited by TÜV Nord according to the RECDcert² certification scheme. The product carbon footprint (PCF) of VINNAPAS® eco C 501 and 8251 is more than 75% lower than conventional VINNAPAS® products.

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

REDcert² certificate confirming the use of renewable raw materials.

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 become carbon neutral with sustainable products by 2050. By 2030, 90% 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 biomass balance approach. This already allows us to use renewable raw materials in existing production processes.

Renewable Raw Materials – Wherever Possible

For our polymer binders, a good starting point is acetic acid: it is required to produce our basic monomer vinyl acetate, and can be obtained from either fossil resources or wood waste. Bio-based acetic acid is used in all VINNAPAS® eco prod-

ucts. We use it not only as a substitution for acetic acid from fossil sources, but also to offset other fossil raw materials, so that our VINNAPAS® eco binders are permitted to carry the label “fossil resources saving product by using renewable raw materials in the value chain.”

Where Does Bio-based Acetic Acid Come From?

We only use acetic acid that is produced as a byproduct of wood-industry processes, such as preparing fibrous material for paper manufacturing. The wood is sourced from sustainably managed forests located within a 400-km radius of WACKER's Burghausen site and the bio-based acetic acid is certified by PEFC® (Programme for the Endorsement of Forest Certification).

A Small Step with a Big Impact

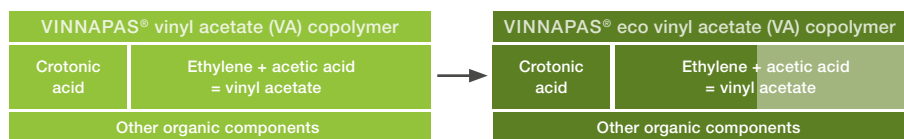
By substituting and offsetting fossil raw materials with bio-based acetic acid according to the biomass balance approach, we can immediately increase the proportion of renewable raw materials in our production.

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 all other products in the VINNAPAS® range as sustainable alternatives. Talk to us!

Biomass Balance Approach for a Vinyl Acetate (VA) Copolymer



■ is compensated ■ is substituted

The international REDcert² certification scheme defines an MBU (biomass balance unit): for example the lower heating value of methane. This forms the basis for calculating equivalent MBUs for each ingredient.

For raw materials that cannot be directly substituted, the corresponding quantity of MBUs of bio-based acetic acid is fed in instead.

An independent body (the German technical inspectorate TÜV Nord) monitors that the necessary amount of bio-based acetic acid is also fed into the integrated production system. As verification, the customer receives a REDcert² certificate attesting to the use of the renewable raw material.



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The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The information provided by us does not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the product for a particular purpose.