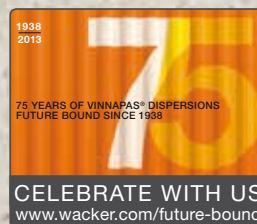


WACKER

CREATING TOMORROW'S SOLUTIONS

VINNAPAS®



NORTH AMERICA | PAPER AND PAPERBOARD COATING

MAKE THE MOVE TO VAE

VINNAPAS® Vinyl Acetate-Ethylene (VAE) Technology –
the Sustainable Solution for Securely Available, Cost-Effective
Paper Applications



VINNAPAS® VAE TECHNOLOGY

- High quality
- Versatility
- Cost-effectiveness
- Sustainability

SOLUTIONS START WITH QUESTIONS

How can you improve the supply security and cost-performance-ratio of your paper and paperboard applications while making them more sustainable?



>> The combination of availability and product features has made VINNAPAS® VAE technology an attractive alternative to commonly used styrene-butadiene (SB) and styrene-acrylate (SA) dispersions. <<

Get One Solution for a Wide Range of Applications

WACKER's VAE technology is a sustainable solution for a broad range of high-quality products. WACKER specializes in dispersions based on vinyl acetate-ethylene copolymer (VAE copolymers). Today our portfolio of VINNAPAS® VAE copolymer dispersions caters to the varied and changing needs of the paper, adhesive, carpet, architectural coating and nonwoven industries.

Get One Solution Offering Many Advantages

Since vinyl acetate and ethylene are produced primarily from natural gas, their supply has not been restricted, unlike butadiene and styrene, which are primarily manufactured from oil. This has helped make VAE copolymers more cost-competitive and predictable in price, offering our customers a cost-effective and sustainable solution.

Why Make the Move?

The unstable global pricing of styrene-butadiene (SB) and styrene-acrylic (SA) polymers means paper and paperboard manufacturers are unable to factor-in a consistent price for a basic component. VINNAPAS® VAE technology, however, is not affected by the same feedstock dynamics, which makes it a reliable alternative for paper and paperboard manufacturers. When you make the move to VINNAPAS® VAE technology, you can be assured WACKER's global and local know-how is there for you every step of the way to ensure the optimal performance of your production process.

WHAT CAN YOU EXPECT FROM US?

WACKER is one of the most research-intensive chemical companies in the world. For 110 years, we have been producing patents, ideas and solutions in both fundamental research and application-oriented innovation.

Rely On a Strong Partner

With our technology strengths, experience and market position, we are a reliable partner to our customers, providing them with the latest breakthrough technologies on a global scale. Customers rely on our product quality which is secured by the very high production standards that we deliver worldwide. They also rely on what has made us strong: our people and their personal commitment.

Profit from Performance

High quality, versatility and cost-effectiveness are terms that characterize WACKER's specialty dispersions for use in paper and paperboard applications. With production facilities in Europe, Asia, and North America, WACKER is the world's leading producer of dispersions based on vinyl acetate-ethylene. Years of "hands-on" application expertise, combined with the latest, most advanced polymer technology, allows us to match the best dispersion to your particular needs.

Safety and Sustainability

WACKER has been a member of the Responsible Care® initiative since its inception, and is a member of the United Nation's Global Compact. Our goal regarding the development of VINNAPAS® dispersions is to combine both ultimate performance and environmental excellence. You can be sure that our environmental and safety statements are always backed up by hard facts and objective criteria. Safety, handling and FDA/BfR information related to our products is provided upon request.

Use Customized Support for Your Innovation

WACKER is focusing efforts on the paper and paperboard industry. Particular emphasis is being placed on new VAE-product development in response to market concerns over the price volatility and long-term sustainability of the current non-VAE chemistries. We operate a paper applications laboratory in Allentown, Pennsylvania. State-of-the-art analytical laboratories support our technical service and new product development efforts, providing additional value to our customers. Our capabilities include IR spectroscopy, particle-size and rheology measurements, dynamic mechanical analysis, and various chromatographic and thermal analyses.

Our commitment to technical service extends beyond our facilities. WACKER's experienced technical staff also performs on-site customer service, new product introductions, mill-trial support, information exchange and troubleshooting.



Service Based on Your Needs

To provide optimum customer support, WACKER operates a dedicated paper applications department. Our goal is to back up the highest quality products with responsive technical service capabilities.



DISCOVER THE ADVANTAGES OF VINNAPAS® VAE DISPERSIONS FOR YOUR PAPER AND PAPERBOARD APPLICATIONS

VINNAPAS® VAE copolymer dispersions can be used as binders in pigment coatings providing the smooth surface, gloss and brightness that is required in today's printing.

Push Your Products with a Pioneering Technology

VINNAPAS® VAE copolymer dispersions offer an excellent balance of pigment binding strength and high ink receptivity, and deliver superior sheet gloss, ink gloss, smoothness and flexibility.

VINNAPAS® VAE copolymer dispersions can be formulated to meet the requirements of various printing processes. They are ideal pigment binders for coated paperboard applications such as SBS, SUS, linerboard and recycled board and in specialty applications such as inkjet printing papers and wallpaper coatings.

In saturant formulations, VINNAPAS® VAE copolymer dispersions can be used to modify such paper physical properties as tensile strength, stiffness and fold endurance.

Two Materials – Many Benefits

Ethylene

- Tg approx. -100 °C (soft)
- Hydrophobicity
- Permanent flexibility
- Ideal copolymerization with VAM
- Natural-gas derivative

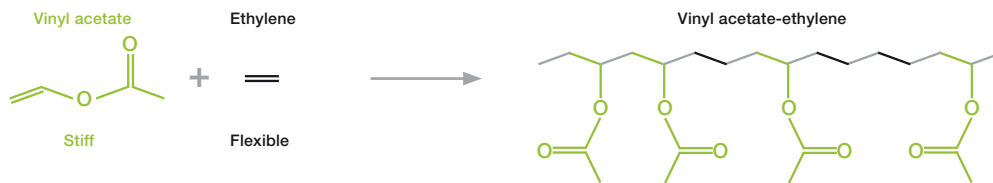
Vinyl acetate (VAM)

- Tg approx. 35 °C (hard)
- Basic raw material
- Polar, hydrophilic
- Toughness
- Natural-gas derivative

Vinyl acetate-ethylene (VAE) copolymer dispersions

- Tg depends on ethylene content
- Excellent film-forming properties
- Good binder adhesion on cellulosic and non-polar substrates
- Excellent glueability to aqueous and hot-melt adhesives
- Inherent opacity benefits
- Excellent UV stability (yellowing resistance)

Two Monomer Bases Create the Desired Balance Between Stiffness and Flexibility





Learn more
about VINNAPAS®
products,
WACKER's VAE
technology,
applications and
advantages:
[www.wacker.com/
vinnapas](http://www.wacker.com/vinnapas)



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