

WACKER

CREATING TOMORROW'S SOLUTIONS

VINNAPAS®

ADHESIVES | POLYMER BINDERS | SOUTH AMERICA

PRODUCT OVERVIEW VINNAPAS® DISPERSIONS

VINNAPAS® VAE – THE HIGH-PERFORMANCE SOLUTION

Success in the adhesives market often depends on choosing the right binder. VINNAPAS® vinyl acetate-ethylene (VAE) technology offers outstanding benefits in terms of performance, safety and versatility.

VINNAPAS® VAE dispersions are water-based co- and terpolymers mainly based on vinyl acetate and ethylene as comonomers.

Ethylene contributes permanent flexibility to the VAE polymer. No external plasticizer is thus necessary in VAEs.

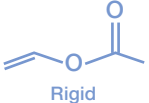
Diverse Applications

VINNAPAS® VAE dispersions can be formulated into adhesives for various applications:

- Paper packaging (e.g. food packaging, envelope manufacturing, film lamination onto paper)
- Wood (e.g. film lamination onto wood, 3D membrane pressing, EPI systems)
- Flooring installation (e.g. textile flooring, flexible coverings)
- Car interiors (e.g. door paneling)
- Tapes & labels

Two Monomers Creating Best-in-Class Performance


Vinyl acetate



Rigid

+

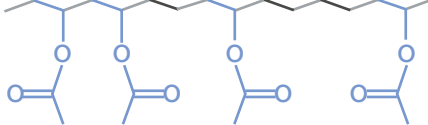
Ethylene



Flexible

→

Vinyl acetate-ethylene (VAE)



Polymer Properties Provided by Ethylene:

- Softness (T_g approx. -125 °C)
- Non-polar, hydrophobic
- Permanent flexibility
- High saponification resistance
- Form ideal copolymers with vinyl acetate

Vinyl Acetate:

- Hardness (T_g approx. 32 °C)
- Polar, hydrophilic
- Rigid

VAE Copolymer and Terpolymer Dispersion Properties:

VINNAPAS® VAE dispersions can be formulated into adhesives that provide outstanding benefits:

- Excellent adhesion to a wide variety of substrates
- High heat resistance
- Very fast setting
- Excellent machinability and re-emulsification properties
- Very good cost / performance ratio
- T_g range from approx. -35 °C to approx. 30 °C, depending on ethylene content

PRODUCT OVERVIEW

Product	Technical Data ¹									Product Benefit	Performance Attributes													Product	
	Base Polymer ²	Solids Content (DIN EN ISO 3251) (± 1%)	Viscosity* [mPa s]	pH (ISO 976)	Glass Transition Temperature Onset Point [°C] (approx.)	Minimum Film-Forming Temperature (MFFT) (DIN ISO 2116) [°C] (approx.)	Film Surface	Stabilizing System ⁴	Paper Packaging							Film to Wood				Wood to Wood	Flooring Installation	Tapes & Labels	Car Interiors		
									Adhesion (for e.g. film to paper)		Cohesion / Heat Resistance	Setting Behavior	Roller / Wheel Application	Nozzle Application	Cleanability	Water Resistance	PVC Adhesion	Water Resistance	Heat Resistance	Setting Behavior	Suitability	Suitability	Suitability		Suitability
VINNAPAS® Products VAE Technology (Co- and Terpolymers) – Poly(Vinyl Alcohol)-Protected Grades																									
VINNAPAS® 315	VAc-E	54–56	1,800–2,700	4–5	17	5	Tack-free	PVOH	Elevated adhesion to coated paper surfaces, high wet tack, rapid setting speed and compatible with partially hydrolyzed poly(vinyl alcohol).	●●●	●●	●●●	●	●●	●					●●					VINNAPAS® 315
VINNAPAS® 323	VAc-E	54–56	1,300–2,300	5–6	23	5	Tack-free	PVOH	Superior adhesion, water resistance and setting behavior compared to plasticized homopolymers. Compatible with fully and partially hydrolyzed poly(vinyl alcohol).	●●●	●●	●●●	●	●●	●●					●●					VINNAPAS® 323
VINNAPAS® 400	VAc-E	54–56	1,800–2,700	4–5	0	0	Slightly tacky	PVOH	Balanced adhesive properties, such as adhesion, rapid setting speed, exceptional machinability, high heat resistance and PEI compatibility.	●	●●	●●	●●●	●●●	●●	●	●●	●		●●	●●●	●●			VINNAPAS® 400
VINNAPAS® 400 H	VAc-E	54–56	3,100–4,400	4–5.5	0	0	Slightly tacky	PVOH	A high-viscosity version of VINNAPAS® 400 dispersion that is designed to improve the yields of a formulated adhesive without sacrificing performance.	●	●●	●●	●●●	●●●	●●	●	●●	●		●●	●●	●●			VINNAPAS® 400 H
VINNAPAS® EF 575	VAc-E	54–56	200–850	4–5	0	0	Slightly tacky	ST	Designed for construction or paper-to-paper applications. Carboxyl functionality enhances adhesion to a wide range of substrates.	●	●●	●	●	●●	●●										VINNAPAS® EF 575
VINNAPAS® EP 4600	VAc-E	62.5–64	200–800	6–7.5	5	0	Slightly tacky	PVOH / nonionic	Low-viscosity profile that allows for high filler loading. Good adhesion to a wide variety of film substrates and fast setting speed.	●	●●	●●●	●	●●	●●●	●●	●●●	●●		●●	●				VINNAPAS® EP 4600
VINNAPAS® EP 6300	VAc-E	62–64	600–1,500	4.3–5.3	0	0	Slightly tacky	PVOH / nonionic	High-solids and carboxylic acid functionality create unique physical properties, such as excellent metal and film adhesion, a wide range of compounding flexibility and alkaline aqueous cleanup.	●●●	●	●●	●●	●	●●	●	●●	●		●●	●●	●			VINNAPAS® EP 6300
VINNAPAS® EP 7000	VAc-E	69.5–71.5	1,200–2,700	4.5–5.5	-3	0	Slightly tacky	PVOH / nonionic	VAE with highest solids content, and superior wet tack and rapid setting speed. Low-temperature heat-sealability and excellent water resistance.	●●	●●	●●●	●●	●	●●	●●●	●●●	●●		●●●	●●●	●●	●	●●	VINNAPAS® EP 7000
VINNAPAS® 401	VAc-E	54–56	1,300–2,200	5–6.5	-15	0	Slightly tacky	PVOH	Excellent adhesion and machining properties for high-speed packaging and converting applications.	●	●●	●●	●●●	●●●	●●	●	●●	●		●●	●●	●			VINNAPAS® 401
VINNAPAS® 920	VAc-E	54–56	800–2,000	4.5–6	-20	0	Tacky	PVOH / nonionic	Carboxylic acid functionality combined with low T _g enables excellent adhesion to metallized and polymeric films.	●●●	●	●●	●	●	●	●●	●●●	●●		●	●	●	●●	●	VINNAPAS® 920
VINNAPAS® 320 KR	VAc-E	55–57	1,800–2,700	4–6	14	3	Tack-free	PVOH	Excellent adhesion to coated paper surfaces and some plastic films. Compatible with fully and partially hydrolyzed poly(vinyl alcohol).	●●	●●	●●	●●●	●	●●	●	●●	●		●●	●●	●●			VINNAPAS® 320 KR
VINNAPAS® EP 705A	VAc-E	54–56	1,900–2,800	4–6	0	0	Slightly tacky	PVOH	Universal binder for paper-packaging applications / film-to-wood lamination.	●●	●●	●●●	●●●	●	●●	●●	●●	●		●●	●●				VINNAPAS® EP 705A
VINNAPAS® EP 706	VAc-E	54–56	3,500–4,500	4–6	0	0	Slightly tacky	PVOH	Universal binder for paper-packaging applications / film-to-wood lamination.	●●	●●	●●●	●●●	●●	●●	●●	●●	●		●●	●●				VINNAPAS® EP 706
VINNAPAS® EP 706K	VAc-E	54–56	4,400–5,400	4–6	0	0	Slightly tacky	PVOH	Universal binder for paper-packaging applications / film-to-wood lamination. A high-viscosity version of VINNAPAS® EP 706. Especially suited to nozzle (HHS) applications.	●●	●●	●●	●●●	●●	●●	●●	●●	●		●●	●●				VINNAPAS® EP 706K
VINNAPAS® EP 724	VAc-E	54–56	1,500–2,500	4–6	19	4	Tack-free	PVOH	Excellent tensile & cohesion strength and heat resistance. Blending with PVAc homopolymers yields better initial bonding strength, setting speed and water resistance.	●●	●●●	●●	●●●	●	●●	●	●●	●		●●	●●	●●			VINNAPAS® EP 724
VINNAPAS® EP 760	VAc-E	59.5–61.5	2,000–3,000	4–6	0	0	Slightly tacky	PVOH	High-solids VAE with an excellent balance of cohesion and adhesion. Stronger bonds and faster setting compared to commodity products.	●●	●●	●●	●●●	●	●●	●●	●●	●		●●	●●		●		VINNAPAS® EP 760
VINNAPAS® EP 645	VAc-E	54–56	5,000–10,000	4–6	5	0	Tack-free	PVOH	Good compatibility with PUD and acrylic. Modified VAE for difficult-to-bond substrates, with good wet tack, setting speed and machinability.	●●	●●	●●	●●	●	●●	●●	●●	●		●●●	●●			●●●	VINNAPAS® EP 645
VINNAPAS® EP 701K	VAc-E	54–56	2,000–4,000	4–6	-10**	0	Tacky	PVOH	Excellent adhesion to difficult-to-bond surfaces. Suitable for laminating films (polyester, polyethylene terephthalate, polyvinylidene chloride and polystyrene) to coated or uncoated papers.	●●●	●	●●	●●	●	●	●●	●●●	●●		●	●●		●		VINNAPAS® EP 701K
VINNAPAS® EP 6420	VAc-E	54–56	3,500–5,500	4–6	2**	0	Slightly tacky	PVOH	Universal binder for paper-packaging applications / film-to-wood lamination. Especially suitable for nozzle (HHS) applications.	●●	●●	●●	●●●	●●●	●●●	●	●●	●		●●	●●				VINNAPAS® EP 6420
VINNAPAS® EP 11	VAc-E	49–51	4,000–6,000	4–5	3**	0	Slightly tacky	PVOH	Universal binder for paper packaging and high cohesion.	●●	●●	●●	●●●	●	●●●	●●	●●	●		●●	●●				VINNAPAS® EP 11
VINNAPAS® EP 14	VAc-E	54–56	4,000–7,000	4–5	3**	0	Slightly tacky	PVOH	Universal binder for paper-packaging applications / film-to-board lamination.	●●	●●	●●	●●●	●	●●●	●●	●●	●		●●	●●				VINNAPAS® EP 14
VINNAPAS® EP 17	VAc-E	59–61	2,800–4,800	4–5	3**	0	Slightly tacky	PVOH/ST	Good compatibility with PUD.	●●	●●	●●	●●	●	●	●	●●	●		●	●●			●●●	VINNAPAS® EP 17
VINNAPAS® EAF 68	VAc-E-A	58–61	4,500–9,500	4–5	-35**	0	Tacky	ST	Pressure-sensitive emulsion designed for high shear resistance. Excellent adhesion to difficult-to-bond substrates, such as OPP, PET and UV coatings with very good cohesion.	●●●	●	●	●	●	●	●	●●	●		●	●●		●●	●●●	VINNAPAS® EAF 68
VINNAPAS® Products PVAc Technology																									
VINNAPAS® DPN 15	VAc	51–53	12,000–18,000	2.5–3.5	28	5	Tack-free	PVOH	D3 1C wood adhesive.																VINNAPAS® DPN 15
VINNAPAS® DPN 16	VAc	50–54	10,000–14,000	2.5–3.5	28	5	Tack-free	PVOH	D3 1C wood adhesive, reduced discoloration.																VINNAPAS® DPN 16
VINNAPAS® DPN 47	VAc	48–52	14,000–22,000	4.5–5.5	19	3	Tack-free	PVOH	D4 2C wood adhesive.																VINNAPAS® DPN 47
VINNAPAS® DPX 271	VAc	44–48	6,000–14,000	5–7	30	5	Tack-free	PVOH	D3 1C wood adhesive, low formaldehyde, discoloration-free.	●	●●●	●●	●	●	●●	●●	●	●●		●●●	●●				VINNAPAS® DPX 271

¹ These figures are intended as a guide only and should not be used in preparing specifications.
² VAc = Vinyl acetate
VC = Vinyl chloride
A = Acrylic ester
E = Ethylene
³ PVOH = Polyvinyl alcohol
⁴ All products produced without the use of APEO surfactants
**Glass transition temperature measured at midpoint

Legend for performance attributes
●●● Excellent ●● High ● Medium

YOUR QUALITY CHOICE – MADE EASY

Our VINNAPAS® dispersions are specially designed to address the continuously changing needs of the modern adhesives industry, offering up-to-date solutions for the latest end-user requirements and market trends.

VINNAPAS® dispersions set the industry benchmark in product quality, performance and reliability. With our product portfolio you benefit from:

- Consistently high quality
- 80 years' experience in vinyl acetate based dispersion technology
- Properties such as adhesion, heat resistance, bonding to a wide range of different substrates, fast setting speed, high wet tack, reliable machinability, and broad formulation possibilities

Technical Support



WACKER is one of the most research-intensive chemical corporations worldwide. Our VINNAPAS® grades for adhesives applications are produced in five manufacturing plants across Europe, the Americas, China and the Asia-Pacific region. To support adhesives manufacturers, we also operate dedicated state-of-the-art adhesives laboratories and technical centers around the globe, where we carry out extensive tests to develop formulations for new products or optimize those of existing products.



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