

VINNAPAS® EP 618

Economical and Environmentally Friendly Coatings with Mid-to-High PVCs

VINNAPAS® EP 618 has been developed specifically for the Chinese interior coatings market. This binder combines the typical environmental advantages of vinyl acetate-ethylene (VAE) technology – such as low-VOC and low-odor capabilities – with performance benefits that include outstanding film formation and excellent mechanical properties, such as scrub and chalking resistance. Consequently, VINNAPAS® EP 618 enables the formulation of coatings with mid-to-high pigment volume concentrations (PVCs) and low binder content.

VINNAPAS® EP 618 – Cost-in-Use Benefits for Economical Paints

The broad formulation latitude of the binder over a wide PVC range and its very positive effect on scrub resistance and hiding power enable formulators to find the best economical solution and thus save money. For example, paints incorporating VINNAPAS® EP 618 need less binder than standard vinyl acrylic-based paints, while offering the same performance. Also, the reduced need for solvents at a comparable performance level reduces cost even further. Plus, due to the binder's positive effect on hiding power, less titanium dioxide is needed to achieve targeted opacities.

VINNAPAS® EP 618 – High Performance for Interior Paints

Paints formulated with VINNAPAS® EP 618 show excellent mechanical properties, such as scrub and chalking resistance. Other notable advantages include excellent over-paintability (touch-up properties) and good alkaline hydrolysis resistance. In particular, the high scrub resistance, which

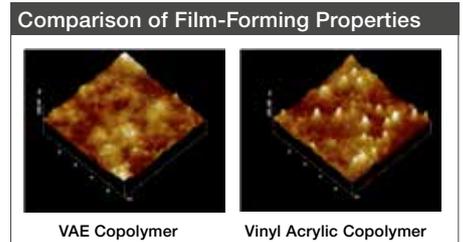
is superior to that of standard VAEs and vinyl acrylics, enables the formulation of paints that perform better and need less binder.

VINNAPAS® EP 618 – An Environmentally Friendly Solution Positioned In Between Standard Acrylic-Based Binders and Premium VAE Binders

Typically, higher T_g vinyl and styrene acrylics need solvents or coalescing agents to lower the minimum film-forming temperature (MFFT) to values enabling proper film formation.

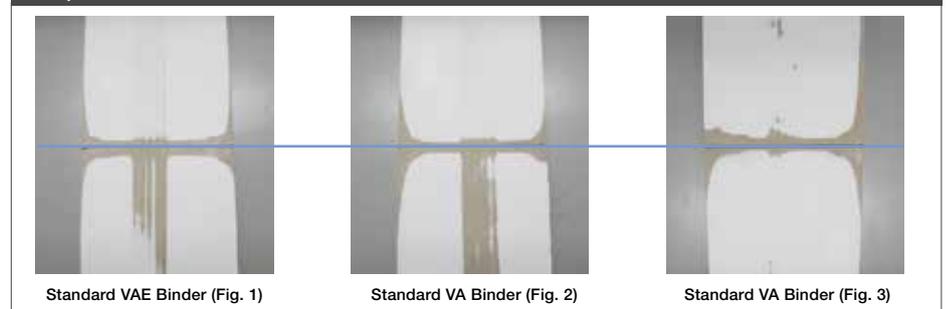
VINNAPAS® EP 618 – due to its VAE technology – has a lower MFFT than standard grades and thus needs less film-forming agent to achieve the required performance. In addition to lowering raw-material costs, this also leads to a reduction in VOC and odor levels compared with standard acrylic-based, higher T_g binders. Consequently, VINNAPAS® EP 618 is ideally suited to customers who still use

dispersions requiring solvents and do not want to completely switch to coalescing agent-free solutions yet. Furthermore, VINNAPAS® EP 618 allows for low-odor and low-VOC formulations that comply with such standards as HJ2537-2015 (VOC < 50 g/l) and JG/T481-2015 (VOC ≤ 20 g/l). Also, VINNAPAS® EP 618 is produced with APEO-free raw materials.



The above images, created by an atomic force microscope (AFM), show the difference between the film-forming effects of VAE and VA binders with similar glass transition temperatures (T_g). The surface of the VAE copolymer is significantly smoother than that of the vinyl acrylic, which underscores the VAE binder's superior film-forming properties.

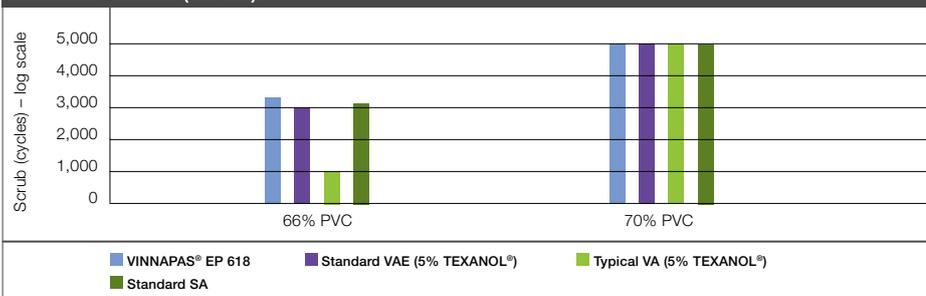
Comparison of Scrub Resistance



Figures 1 and 2: using the same binder amount, the paint with VINNAPAS® EP 618 (top three images) exhibits significantly better scrub resistance than paints with standard VAE or VA binders (bottom three images).

Figure 3: even if the VA-binder content is increased by 15% and the VAE-binder content remains the same, the paint with VINNAPAS® EP 618 still surpasses the scrub resistance of the paint with a standard VA binder. This means that VINNAPAS® EP 618 continues to perform effectively even if less is used, which helps reduce the total formulation cost.

Abrasive Scrubs (GSTM)



The graph compares scrub resistance (using GSTM) in interior-paint formulations with 66% and 70% pigment volume concentrations. In the 66% PVC coating recipe, VINNAPAS® EP 618 enables a better scrub resistance than standard VAE binders and significantly better scrub resistance than typical VA binders. Compared with standard SAs, a similar performance level is achieved. In the 70% PVC coating recipe, VINNAPAS® EP 618 offers state-of-the-art performance, as all the tested binders can reach 5,000 scrub cycles.

Product Data for VINNAPAS® EP 618

Specification Data	Inspection Method	Value
Solids content [wt. %]	DIN 53189	55 ±1
Glass transition temperature [T _g , °C]	WACKER method	~ 18
Minimum film-forming temperature [°C]	DIN 53787	~ 0
Particle size [µm]	WACKER method	~ 0.3
Viscosity [mPa.S]	ISO 2555	< 3,000
pH value	DIN ISO 976	5 – 6
Density [g/cm ³]	DIN EN ISO 2811-1	1.07 (at 20 °C)

At a Glance: Properties of VINNAPAS® EP 618

- Enables formulation of paints without coalescing solvents
- Broad formulation latitude, suitable for flat and mid-sheen finishes
- Low-VOC content, capable of meeting the HJ2537-2015 (VOC < 50 g/l) and JG/T481-2015 (VOC ≤ 20 g/l) standards
- Low odor
- Excellent scrub resistance
- Very good touch-up properties
- Improved water resistance
- Good alkaline hydrolysis resistance
- Good response to associative thickeners
- Produced without the use of APEOs
- Suitable for multiple interior applications, ranging from wall paint to trim paint
- Suitable for both contractor and DIY applications

Recommendations for VINNAPAS® EP 618

Gloss Levels	
Flat	● ●
Satin	●
Semi-gloss	●
Typical Applications	
Indoor walls	● ●
Kitchens & bathrooms	●
Interior doors & windows	●
End-User Suitability	
Do-it-yourself	● ●
Contractors	● ●



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