

# VINNAPAS® EP4600

## Product description

VINNAPAS® EP4600 is a poly(vinyl alcohol) stabilized vinyl acetate-ethylene (VAE) copolymer dispersion with a glass transition temperature ( $T_g$ ) of +5°C. It was developed as a low viscosity, high solids dispersion with the ability to accept high filler loading levels.

## Properties

VINNAPAS® EP4600 has a unique combination of low viscosity and high solids which, together with its ability to accept high loadings of fillers, enables the manufacture of very high solids adhesives. In addition, VINNAPAS® EP4600 will not thicken appreciably with the addition of plasticizers. The dispersion has very good adhesion to a wide variety of difficult-to-adhere substrates such as plastic films and coated papers. The dispersion is mechanically shear stable which upon drying forms a clear, slightly tacky film.

No formaldehyde or formaldehyde donors are intentionally added to VINNAPAS® EP4600. It is produced without the use of any surfactants or defoamers that contain alkyl ethoxylates (APEOs).

## Application

The high solids content and adhesion to plastic substrates of VINNAPAS® EP4600 make it especially useful in bonding films to paper and board stocks, where lower water content and low formaldehyde adhesives are required. The very good adhesion to difficult-to-bond surfaces shown by the dispersion is very useful in laminating films such as polystyrene, poly(ethylene terephthalate), poly(vinyl chloride) (PVC) and poly(vinylidene chloride).

## Processing

VINNAPAS® EP4600 can be compounded with plasticizers in a manner similar to VINNAPAS® EP7000. It is compatible with other vinyl acetate-based polymers and acrylic polymers.

## Storage

When VINNAPAS® EP4600 is stored in tanks, proper storage conditions must be maintained. If stored in the original, unopened containers at cool (below 30 °C), but frost-free temperatures VINNAPAS® EP4600 has a shelf life of 9 months from the date of manufacture. Iron or galvanized-iron equipment and containers are not recommended because the dispersion is slightly acidic. Corrosion may result in discoloration of the dispersion or its blends when further processed. Therefore the use of containers and equipment made of ceramics, rubberized or enameled materials, appropriately finished stainless steel, or plastic (e.g. rigid PVC, polyethylene or polyester resin) is recommended.

As polymer dispersions may tend to superficial film formation, skins or lumps may form during storage or transportation. Filtration is therefore recommended prior to utilization of the product.

## Preservation for Transport, Storage and further Processing

VINNAPAS® EP4600 is adequately preserved during transportation and storage if kept in the original, unopened containers. However, if it is transferred to storage tanks, the dispersion should be protected against microbial attack by adding a suitable preservative package.

To maintain proper storage conditions appropriate measures should also be taken to ensure cleanliness of the tanks and pipes. In a storage tank in which VINNAPAS® EP4600 is not stirred, it is advisable to contact your biocide representative/supplier. Proper procedures must be set up in order to prevent microbial attack between necessary periodic tank cleaning and sanitization. These procedures will vary, since loading and unloading practices in each storage situation will differ slightly.

Finished products manufactured from polymer dispersions usually also require preservation. The type and scope of preservation will depend on the raw materials used and the anticipated sources of contamination. The compatibility with other components and the efficacy of the preservative should always be tested in the respective formulation. Preservative manufacturers will be able to advise you

about the type and dosage of preservative required.

**Additional information**

If VINNAPAS® EP4600 is used in applications other than those mentioned, the choice, processing and use of VINNAPAS® EP4600 is the sole responsibility of the purchaser. All legal and other regulations must be complied with.

For questions concerning food contact status according to chapter 21 CFR (US FDA) and German BfR, please contact:

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**Safety notes**

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. These are available on request from WACKER sales offices or may be downloaded from the WACKER Web site [www.wacker.com/vinnapas](http://www.wacker.com/vinnapas).

**Product data**

Specification data	Inspection Method	Value
Solids content	EN ISO 3251	62.5 - 64.0 %
Viscosity, dynamic at 25 °C	DIN EN ISO 2555	200 - 800 mPa.s
pH-Value	DIN/ISO 976	6.0 - 7.5
Typical general characteristics	Inspection Method	Value
Density	ISO 2811	approx. 1.07 g/cm <sup>3</sup>
Wet tack	specific method	high
Mechanical stability	specific method	excellent
Thickening response	specific method	low
Frost resistance	specific method	protect from freezing
Glass transition temperature	specific method	approx. 5 °C
Water resistance	specific method	good
Film clarity	specific method	clear
Dry tack	specific method	slight tack
Flexibility	specific method	very good

Figures below "Typical general characteristics" are intended as a guide and should not be used in preparing specifications.

The data presented in this medium 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 medium 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.

The management system has been certified according to DIN EN ISO 9001 and DIN EN ISO 14001

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