VINNAPAS® 400

Product description

VINNAPAS® 400 is a poly(vinyl alcohol) stabilized vinyl acetate-ethylene (VAE) copolymer dispersion with a glass transition temperature (T_g) of 0°C. It was developed as a high-performance dispersion offering a superior balance of adhesive/cohesive properties useful in an extremely wide variety of applications.

Properties

VINNAPAS®400 dispersion is used as a base for adhesives and offers a superior balance of adhesive/ cohesive properties. It exhibits excellent setting speed, wet tack, and high thickening response. It has clean machining and is suitable for a variety of roll, extruder or spray applications because of its poly(vinyl alcohol) stabilization. The total free residual vinyl acetate monomer content is less than 1,000 ppm.

The dry film is tack-free and heat-sealable. The backbone of the polymer gives the dried adhesive film both high tensile strength and flexibility that continue to be present even with fluctuations in temperature and humidity. VINNAPAS® 400 has excellent heat resistance which, at elevated temperatures, is much greater than that exhibited by other vinyl acetate-ethylene, vinyl acetate-maleate and vinyl acetate-acrylate copolymers with similar glass transition temperatures. The initial adhesive strength is excellent even after aging, and it exhibits excellent resistance to plasticizer migration.

Application

VINNAPAS® 400 dispersion is an excellent base for adhesive formulators and can be used in an extremely wide variety of applications. The ethylene in the polymer acts as an internal plasticizer which provides flexibility and reduces or eliminates the need for plasticizer in many applications. Because of its flexibility and excellent adhesion to so many substrates, VINNAPAS® 400 is a versatile base in adhesives for application areas which include but are not limited to packaging (case and carton,) converting, bookbinding, textile bonding, vinyl and paper to wood laminating, automotive applications, and craft glues. It forms strong bonds between porous substrates and such films as poly(vinyl chloride) (PVC), poly(vinylidene chloride), cellulose acetate, cellophane and acrylic.
VINNAPAS® 400 dispersion adheres to widely diversified substrates such as paper, wood, cotton cloth, nylon cloth, glass and glass fibers, hardboard, urethane foam and clay coated paperboard.

Other Applications

- Paint (texture coatings)
- Consumer goods
- Gypsum board joint compound

Processing

VINNAPAS® 400 dispersion is compatible with other poly(vinyl alcohol) and surfactant stabilized vinyl acetate-based dispersions and acrylic copolymers. It is also compatible with rubber lattices, water based urethane dispersions, solvents, plasticizers and other modifiers. VINNAPAS® 400 dispersion thickens rapidly to high viscosities with the addition of plasticizers and/ or solvents. The addition of plasticizers to VINNAPAS® 400 dispersion will improve the specific adhesion, water resistance and setting speed. Additionally, the adhesive dispersion accepts high loadings of dry fillers.
VINNAPAS® 400 can be further crosslinked through the hydroxyl functionality of the poly(vinyl alcohol) with materials such as glyoxal, boric acid, and isocyanates.

Storage

When VINNAPAS® 400 dispersion 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® 400 dispersion has a shelf life of 6 months. 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.

Preservation for Transport, Storage and further

VINNAPAS® 400 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 piping. In a storage tank in which VINNAPAS® 400 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® 400 is used in applications other than those mentioned, the choice, processing and use of VINNAPAS® 400 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. They are available on request from WACKER sales offices or may be printed via WACKER web site www.wacker.com/vinnapas.

Product data

Specification data	Inspection Method	Value
Solids content	02CM170	54.0 - 56.0
Viscosity	AM622	1800 – 2700 mPa.s
pH-Value	AM631	4.0 – 5.0
VAM by Head Space GC	93CRS038	999 ppm max.
Grit 100 Mesh	AM701	50 ppm max.

Typical general characteristics	Inspection Method	Value
Density	WACKER method	1,05 g/cm^3
Wet tack	WACKER method	High
Mechanical Stability	WACKER method	Excellent
Thickening Response	WACKER method	High
Freeze/Thaw Stability	WACKER method	Protect from freezing
Glass transition temperature DSC	WACKER method	approx. +0 °C
Water Resistance	WACKER method	Good
Film Clarity	WACKER method	Slightly Hazy
Dry Tack	WACKER method	None
Flexibility	WACKER method	Good

These figures are only intended as a guide and should not be used in preparing specifications.

For technical, quality, or product safety questions, please contact:

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