VINNAPAS® 401

Product description

VINNAPAS® 401 is a poly(vinyl alcohol) stabilized vinyl acetate-ethylene copolymer dispersion with a glass transition temperature (T_g) of -15 °C. It was developed to offer easy clean-up, long open time and excellent film flexibility.

Properties

VINNAPAS® 401 dispersion is used as a base for adhesives and has an excellent balance of very good wet tack, speed of set, adhesion, and heat resistance. It has a high thickening response to plasticizer and a long open time. The low T_g of the dried film provides excellent cold temperature flexibility. Compared to VINNAPAS® 400, this dispersion offers cleaner machining, easier clean up and is suitable for a variety of roll, extruder, and spray applications. VINNAPAS® 401 is especially suited for non-contact extrusion machine configurations. The total free residual vinyl acetate monomer content is less than 1,000 ppm

Application

VINNAPAS® 401 can be used to bond a variety of substrates including but not limited to coated and uncoated paper, cellulose acetate, polystyrene, poly(vinyl chloride) (PVC), and poly(vinylidene chloride). It is recommended for use in high-speed packaging and envelope applications where rapid setting speeds, good machining, and easy-clean up properties are required. The long open time helps to prevent premature drying under conditions of prolonged exposure to air especially on large diameter applicator rolls and non contact extrusion nozzles. The higher level of ethylene in the polymer acts as an internal plasticizer which provides flexibility and reduces or eliminates the need for plasticizer in many applications. Due to the low T_g, VINNAPAS® 401 continues to form a film at lower temperatures and can be used in the laminating of cold substrates while still maintaining adhesion and heat resistance.

Processing

VINNAPAS® 401 can be compounded with typical plasticizers, solvents, fillers, and thickeners that are used for VINNAPAS® 400 and other poly(vinyl acetate)-based adhesives. It is compatible with other poly(vinyl alcohol) and surfactant stabilized vinyl acetate-based dispersions and acrylic copolymers. This dispersion can be compounded with poly(vinyl alcohol) to create a more water sensitive adhesive.

Storage

When VINNAPAS® 401 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® 401 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 Processing

VINNAPAS® 401 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® 401 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® 401 is used in applications other than those mentioned, the choice, processing and use of VINNAPAS® 401 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, Brookfield RVF#3 @20 rpm, 25°C	AM622	1300 – 2200 mPa.s
pH-Value	AM631	5.0 – 6.5
VAM by Head Space GC	93CRS038	950 ppm max.

Typical general characteristics	Inspection Method	Value
Protective colloid / emulsifier system	WACKER method	polyvinyl alcohol
Density	WACKER method	1,05 g/cm^3
Predominant particle size	WACKER method	approx. 1200 nm
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. -15 °C
Water Resistance	WACKER method	Moderate
Film Clarity	WACKER method	Slightly Hazy
Dry Tack	WACKER method	None
Flexibility	WACKER method	Excellent

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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