VINNAPAS® 401

Polymer Dispersions

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

Properties

VINNAPAS® 401 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 Tg 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.

Technical data

Specification

Property	Condition	Value	Method
Solids content	-	54.0 - 56.0 %	specific method
Viscosity, dynamic	25 °C	1300 - 2200 mPa·s	specific method
pH	-	5.0 - 6.5	specific method

General Characteristics

Property	Condition	Value	Method
Density	-	1.05 g/cm^3	specific method
Frost resistance	-	protect from freezing	specific method
Protective colloid / emulsifier system	-	polyvinyl alcohol	-
Glass transition temperature	-	approx. -15 °C	DSC, specific method
Dry tack	-	none	specific method
Film clarity	-	slightly hazy	specific method
Flexibility	-	excellent	specific method
Mechanical stability	-	excellent	specific method
Thickening response	-	high	specific method
Water resistance	-	moderate	specific method
Wet tack	-	high	specific method

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

Protect against frost.

Applications

- Paper Packaging & Converting

Application details

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. 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 Tg, 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.

Packaging and storage

Storage

When the 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 the product has a shelf life of 9 months from the date of manufacture. Any longer periods for the maximum storage period that may be described in the Certificate of Analysis which accompanies each shipment of the product, take preference over this suggestion in which case the time period stated in the Certificate of Analysis shall be solely authoritative. 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
The product 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 the product 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.

Safety notes

Comprehensive instructions are given in the corresponding 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.

QR Code VINNAPAS® 401

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

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