

VINNOL® 4530

Product description

VINNOL® 4530 is an aqueous, terpolymer dispersion produced from the monomers of vinyl chloride, ethylene and a third monomer imparting amide functionality. It is used in many Engineered Fabrics, Coating, and Adhesive applications.

Properties

VINNOL® 4530 dispersion offers excellent strength, water resistance and heatsealability. The dispersion also provides good stiffness, and is very versatile in formulating. VINNOL® 4530 has a low formaldehyde level of less than 100 ppm.

VINNOL® 4530 dispersion is a fine particle size product with excellent pigment-binding powers. Because of the vinyl chloride content, this product has superior wet and dry abrasion resistance versus conventional emulsion polymers. VINNOL® 4530 films are more hydrophobic and possess excellent alkali resistance. In addition this product is ideal for specialty coating applications where vapor barriers and fire retardancy is needed.

Application

VINNOL® 4530 can be used in a wide range of applications in the industries mentioned above, ranging from secondary binders in coatings for various masonry applications, primary binders to help add stiffness and toughness to commercial building products and various adhesive applications. Additionally VINNOL® 4530 is used in industrial automotive and HVAC filtration, as well as medical applications. Application methods include saturation, spray, foam, and print bonding.

Processing

VINNOL® 4530 has excellent machinability. Drying temperatures for the EVCL emulsions need not exceed 300 °F, as they are not self-crosslinking resins and do not need to be cured. Above 300 °F, the EVCL emulsions have a tendency to yellow.

VINNOL® 4530, like other polymers, has a tendency to foam under shear. Foaming can be reduced by avoiding procedures which entrap air, e.g., allowing the emulsion

to free fall or using nozzles that incorporate air into the emulsion. Foaming can be controlled by the addition of 0.05% to 0.2% (based on total formulation weight) of a commercial defoamer.

Formulating

VINNOL® 4530 is compatible with a wide variety of formulating ingredients. For example, they are generally compatible with most other anionic and nonionic emulsion polymers. In addition, they may be formulated with:

- Dyes
- Pigments and Clays
- Anionic and Nonionic Surfactants
- Defoamers
- Dispersants
- Various External Crosslinkers (MF & UF resins)
- Nonionic Antimicrobials
- Flame Retardant Additives (suggest bottle blend check for compatibility)
- Thickeners

VINNOL® 4530 may be formulated over a pH range of 4 to 11 without losing mechanical stability. The dispersion will accept high levels of clay, calcium carbonate, or other fillers. However, they have poor tolerance to tri- and quatra-valent ions. Cationic polymers may flocculate EVCL emulsions.

VINNOL® 4530 can be thickened with various hydrocolloids and polymer solutions. The preferred viscosifiers are carboxylated polymers such as ammonium or sodium poly acrylates, but certain cellulosic thickeners such as sodium carboxymethylcellulose (CMC) and hydroxyethylcellulose (HEC) may also be used.

VINNOL® 4530 can be formulated with nonionic antimicrobials. The combination of VINNOL® 4530 with an antimicrobial product provides microbial protection to the final nonwoven substrate. Suggested product(s) and additive levels are based on the type of microbial protection required and the substrate weight. Contact individual manufacturers for specific additive guidelines.

Storage

When VINNOL® 4530 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 VINNOL® 4530 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

VINNOL® 4530 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 VINNOL® 4530 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 VINNOL® 4530 is used in applications other than those mentioned, the choice, processing and use of VINNOL® 4530 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	WACKER method	49 - 51%
Viscosity, Brookfield LVF #2 @ 60 rpm, 25°C	WACKER method	25 - 500 mPa.s
pH-Value	WACKER method	7.0 – 9.0
VAM by Head Space GC	WACKER method	<0.1%
Residual Vinyl Chloride Monomer	WACKER method	<4.2 ppm
Typical general characteristics		
	Inspection method	Value
Density	WACKER method	1.13 g/cm ³
Glass transition temperature DSC	WACKER method	approx. 29 °C
Mechanical stability	WACKER method	Excellent
Particle charge	WACKER method	Anionic
Appearance	WACKER method	White, fluid dispersion

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

The data presented in this leaflet 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 leaflet 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 recommendations do 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 products 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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For technical, quality, or product safety questions, please contact:

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