

# Vinac® DPN217 DEV Emulsion

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Vinac DPN217 DEV polymer emulsion is a vinyl acetate homopolymer with self-crosslinking functionality, which can be used as the adhesive base emulsion for the manufacture of precatalyzed wood adhesives that meet the U.S. Type 2 and European D3 water resistance standards. Adhesives formulated from Vinac DPN217 emulsion have excellent initial green strength when wood bonds are cured via radio frequency curing equipment or hot presses. Other properties of the formulations include good water resistance, very good heat resistance, good resistance to static load and very fast setting speed.

Vinac DPN217 emulsion shows strong adhesion to porous and cellulosic surfaces like paper, wood and cloth. The emulsion provides tough films that have outstanding water resistance when cured.

Vinac DPN217 emulsion needs to be formulated with a catalyst/hardener to activate the crosslinking chemistry and build adhesive performance that meets the following industry specifications:

- Water resistance requirements of ANSI-HPVA [HP-1-1994] "Type 2" and strain group D3 of DIN EN 204.
- Heat resistance requirements of ASTM D 5751-95 and WATT 91.

A unique characteristic of this emulsion is its outstanding pre-catalyzed viscosity stability, unsurpassed by any other emulsion available in this classification. The typical addition of 3.5 percent of a 32° Baume aluminum chloride solution to this emulsion can create pre-catalyzed adhesives, which have a shelf life in excess of six months and still pass the water resistance requirements of Type2/D3 specifications.

## Compounding

Vinac DPN217 emulsion can be cured with any acid catalyst, though 32° Baume aluminum chloride solutions are preferred. This system combines the easy handling and fast setting characteristics of a poly(vinyl acetate) emulsion with the excellent water resistance of self-curing resins. Cured gluelines have excellent sandability.

Vinac DPN217 emulsion will accept fillers like clay, uncooked cornstarch, wood flours, shell flours or other fillers. Calcium carbonate or other fillers with a high pH are not recommended since they would interfere with the crosslinking reaction. If a

## Technical Data Sheet

lower viscosity is desired, water can be used to dilute the adhesive. Vinac DPN217 emulsion is compatible with other emulsions, especially other homopolymers like the Vinac XX series emulsions. The level of catalyst should be adjusted to maintain performance as fillers or extenders are added.

Vinac DPN217 emulsion can be thickened with hydroxyethyl cellulose, poly(vinyl alcohol) or associative thickeners.

Condensation reactions with additives such as urea-formaldehyde resins, phenol-formaldehyde resins and melamine-formaldehyde resins are all possible.

It is recommended that Vinac DPN217 emulsion is used within six months of receipt.

### Typical Emulsion Properties

% Solids <sup>1</sup>	50 ± 1%
Viscosity, cPs <sup>2</sup>	8,000-12,400 4.0-6.0
Polymer Type	Vinyl Acetate
Protective Colloid	PVOH
Mechanical Stability	Excellent
Freeze Thaw Stability	Excellent
Thickening Response	Moderate
Reaction to Borax	Coagulates
Wet Tack	High
Density, lb/gal	9.0

### Typical Film Properties

Water Resistance	Low (Uncatalyzed) High (Precatalyzed)
Adhesion to Glass	High
T <sub>g</sub>	41 °C
Film Clarity	Slightly Hazy
Dry Tack	None
Flexibility	Brittle

<sup>1</sup> Cenco Moisture Balance

<sup>2</sup> Brookfield Viscometer, Model RVF, @20 RPM

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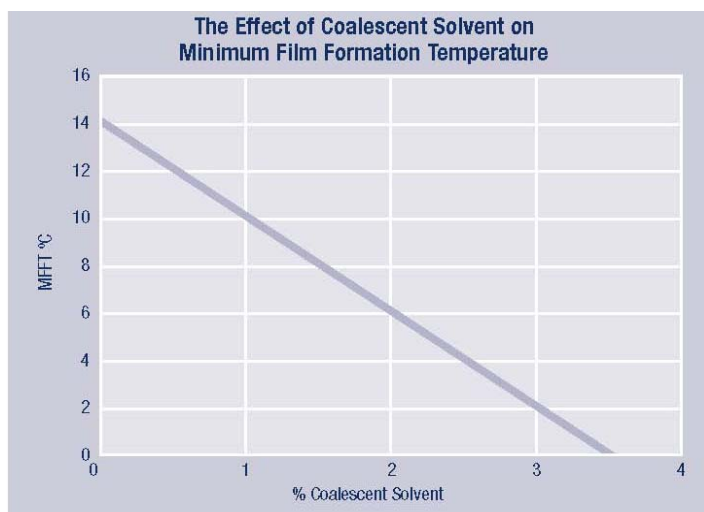
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### **Applications**

Vinac DPN217 polymer emulsion is used in a variety of wood-bonding applications like composite panel, panel-on-frame construction, edge gluing, face gluing, finger jointing and laminating of various core stocks. Vinac DPN217 emulsion formulations are suitable for radio frequency gluing, as well as hot press and cold press operations. Typical end uses include various door constructions like architectural doors, fire doors, and stile and rail doors. Water-resistant and heat-resistant constructions include finger-jointed millwork for frames, moldings and doors. Plywood constructions or veneering operations can be hot pressed or cold pressed. Other miscellaneous applications include water-resistant paper cores, paint roller cores and fiberglass sizing.

Vinac DPN217 emulsion has a minimum film formation temperature of 57 °F (14 °C). For proper performance, the application temperature of the adhesive and substrates should be above this temperature.

### **Handling**

Vinac DP217 DEV emulsion contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.

**Ashland maintains Material Safety Data Sheets on all of its products. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers.**

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