EASTMAN

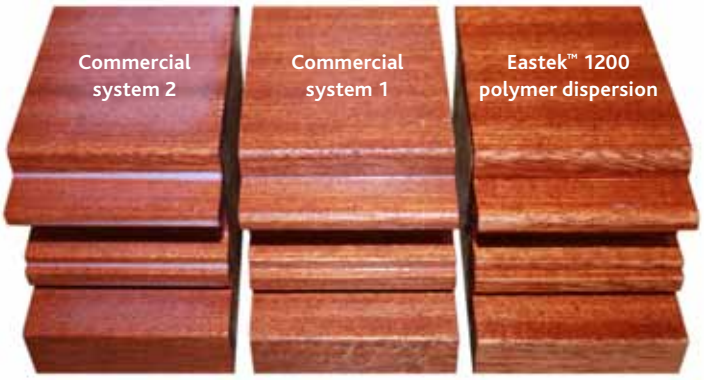
Eastek™ 1200 polymer dispersion

An investigation into the performance of a sulfopolyester dispersion for industrial joinery applications

The performance of one of Eastman's range of sulfopolyester dispersions, Eastek™ 1200 polymer dispersion, has been researched in comparison with various commercial systems in the initial impregnant layer of a wood coating typically used for windows.

	Eastek™ polymer dispersions				
Properties	**1000**	**1100**	**1200**	**1300**	**1400**
Water dispersability	••	•••	•	••	••
Glass transition temperature, T_g, °C	38	55	63	36	29
Minimum film-forming temperature (MFFT), °C	<5	5	27	12	<5
Hydroxyl number	5.0	5.3	<10	<10	5.0
Solids, wt %	30	33	30	30	30
pH	6.0	6.2	6.6	6.0	6.0
Viscosity, cP	60	89	99	14	15
Particle diameter, nm	27	20	13	54	34

• Good •• Better ••• Best



Comparison of penetration and appearance

The key features of the product range are ***neutral pH, relatively low solution viscosity,*** and ***exceptionally small particle size.*** In addition, the solids content of the dispersions ranges from 30-33 wt %. During the investigation, which focused on Eastek™ 1200 polymer dispersion, the following performance areas were researched

- Impregnation behavior and appearance
- Resistance to UV light exposure
- Drying performance
- Resistance to mechanical damage and hail

Conclusions

The results show that this type of polymer gives alkyd emulsion-like penetration into various wood species but with non-yellowing characteristics similar to acrylic dispersions. Furthermore, the exceptionally small particle size of the dispersions provides unprecedented clarity and appearance on natural wood substrates which compares favorably with solvent-borne shellac coatings noted for their remarkable aesthetics.

The chemical and physical nature of the sulfopolyester dispersions produces coating systems which are fast drying. The electrostatic stabilization of the sulfopolyester dispersion eliminates the need for amine- and surfactant-based neutralization, giving advantages of viscosity stabilization and low foaming demanded in highly automated recirculation lines utilized by industrial wood-coating companies.

More details on the investigation and its results can be found in publication TT-EU113.

Eastek™ 1200 polymer dispersion

- **Excellent penetration** performance due to **very small particle size** — translucent solution
- **Fast drying** and **hardness development**
- **High flexibility** — passes impact resistance test that is designed to simulate damage to industrial wood-coating systems caused by hail storms and other impacts
- **Non-yellowing** — superior resistance under UV light exposure
- Very **high gloss and clarity**
- **Excellent appearance** and **harmonizing effect**
- **Low odor** and **non-skinning**

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