

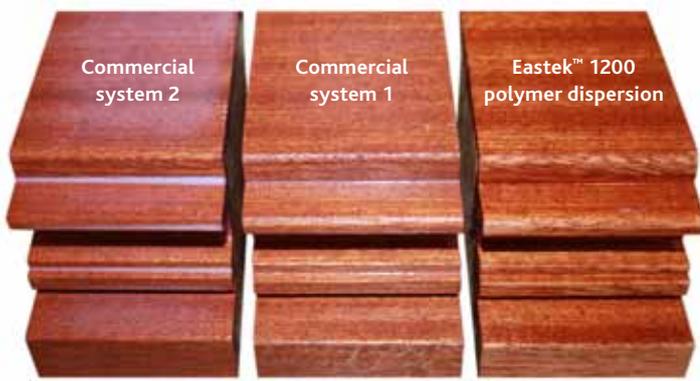
Eastek™ 1200 polymer dispersion

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.

| Properties | Eastek™ polymer dispersions | | | | |
|---|-----------------------------|------|------|------|------|
| | 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**

EASTMAN

Eastman Chemical Company Corporate Headquarters

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

Telephone:
U.S.A. and Canada,
800-EASTMAN (800-327-8626)
Other Locations, (1) 423-229-2000
Fax: (1) 423-229-1193

Eastman Chemical Latin America

9155 South Dadeland Blvd.
Suite 1116
Miami, FL 33156 U.S.A.

Telephone: (1) 305-671-2800
Fax: (1) 305-671-2805

Eastman Chemical B.V.

Fascinatio Boulevard 602-614
2909 VA Capelle aan den IJssel
The Netherlands

Telephone: (31) 10 2402 111
Fax: (31) 10 2402 100

Eastman (Shanghai) Chemical Commercial Company, Ltd. Jingan Branch

1206, CITIC Square
No. 1168 Nanjing Road (W)
Shanghai 200041, P.R. China

Telephone: (86) 21 6120-8700
Fax: (86) 21 5213-5255

Eastman Chemical Japan Ltd.

AIG Aoyama Building 5F
2-11-16 Minami Aoyama
Minato-ku, Tokyo 107-0062 Japan

Telephone: (81) 3-3475-9510
Fax: (81) 3-3475-9515

Eastman Chemical Asia Pacific Pte. Ltd.

#05-04 Winsland House
3 Killiney Road
Singapore 239519

Telephone: (65) 6831-3100
Fax: (65) 6732-4930

Material Safety Data Sheets providing safety precautions, that should be observed when handling and storing Eastman products, are available online or by request. You should obtain and review the available material safety information before handling any of these products. If any materials mentioned are not Eastman products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

Neither Eastman Chemical Company nor its marketing affiliates shall be responsible for the use of this information, or of any product, method or apparatus mentioned, and you must make your own determination of its suitability and completeness for your own use, for the protection of the environment and for the health and safety of your employees and purchasers of your products. NO WARRANTY IS MADE OF THE MERCHANTABILITY OR FITNESS OF ANY PRODUCT, AND NOTHING HEREIN WAIVES ANY OF THE SELLER'S CONDITIONS OF SALE.

Eastek, Eastman, and The results of insight are trademarks of Eastman Chemical Company.

© Eastman Chemical Company, 2011.