

Technical Data Sheet

EPON™ Resin 8280

Product Description

EPON™ Resin 8280 has been designed especially for formulating filled compounds for a wide variety of structural applications, including bonding, electrical encapsulating, tooling, flooring and most construction uses. EPON Resin 8280 is a low molecular weight resin with outstanding resistance to pigment and filler settling, which gives greater stability to filled systems. The resin also has superior resistance to foaming under vacuum and has an adjusted, controlled reactivity with amine curing agents, which serves to extend pot life and working life characteristics. In addition, viscosity stability — often a problem in anti-settling resins — presents no problem for EPON Resin 8280. It is as good in viscosity stability as other conventional liquid EPON Resins. Furthermore, it yields products with high physical strength, excellent chemical resistance and good electrical properties. Typical properties for several EPON Resin 8280 amine-cured systems are given below.

Application Areas/Suggested Uses

- Adhesives
- Electrical encapsulation
- High solids coatings
- Vacuum processing

Benefits

- Low foaming
- High resistance to filler settling
- Controlled reactivity with amine curing agents

Sales Specifications

| Property | Value | Unit | Test Method |
|--------------------------------|-----------|---------|-------------|
| Color | 1 max | Gardner | ASTMD1544 |
| Viscosity at 25°C ¹ | 110 - 150 | P | ASTMD445 |
| Weight per Epoxide | 185 - 195 | g/eq | ASTMD1652 |

Typical Properties

| Property | Value | Unit | Test Method |
|---------------------------------------|--------------|--------|-------------|
| Density at 20°C | 9.7 | lb/gal | ASTMD1475 |
| Refractive Index at 25°C ¹ | 1.57 - 1.575 | | |
| Specific gravity at 20°C | 1.168 | g/mL | |

Processing/How to use

General Information

Low Foaming Tendencies

EPON Resin 8280 possesses the ability to inhibit foaming during out-gassing in vacuum processing applications. It also has a tendency to reduce bubbles and voids at ambient pressures.

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<http://www.westlakeepoxy.com/en-US/product/epon-resin-8280>

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Controlled Reactivity with Amine Curing Agents

The reactivity of EPON Resin 8280 is controlled to provide more uniform reactivity between lots and greater ease of handling to the user. The reactivity is similar to undiluted resins,

e.g., EPON Resin 828.

Resistance to Filler Settling

When compared to standard liquid epoxy resins, EPON Resin 8280 exhibits improved resistance to silica filler settling. This is illustrated in Figure 1, which reflects testing of EPON Resin 8280 and two other systems under three different conditions — 3 hours at 95 °C; 10 hours at 95 °C; and 72 hours at 60 °C. All three systems were prepared using finely divided silica. The curves in Figure 1 plot the depth of the settled layer excluding zero settling. The greater the curvature of the line, the softer the settling layer, and therefore, the more easily redispersed.

In the 3 hour test, EPON Resin 8280 showed virtually no settling, where the other two systems exhibited a small but hard layer of filler settling. In the 10 hour test, the EPON Resin 8280 system showed a shallow layer of soft settle, while the other two produced deeper and harder layers. In the most severe test, 72 hours, the EPON Resin 8280 system still exhibited a shallow layer of soft settling while the other two systems showed the same or a greater degree of disparity.

Settling tendency was also tested for seven days at 25 °C (not shown in Figure 1). In this test, EPON Resin 8280 exhibited a negligible amount of soft settling, whereas with other systems tested, about half the filler content had settled in a hard layer.

Performance Properties

Table 1 / Typical Properties of EPON™ Resin 8280 – Unfilled Castings

| | Method | Units | A | B | C |
|---|-----------|-------|----------------------|---------------------|---------------------|
| EPON Resin 8280 | | pbw | 100 | 100 | 100 |
| EPIKURE™ Curing Agent 3223 (DETA) | | pbw | 11 | | |
| Metaphenylenediamine (MPDA) | | pbw | | 14.4 | |
| Hexahydrophthalic Anhydride (HHPA) ¹ | | pbw | | | 82.5 |
| Cure Schedule | | hr/°C | 24 / 23 + 2 / 150 | 2 / 80 + 2 / 150 | 2 / 90 + 4 / 150 |
| Cured State Properties | | | | | |
| Heat Deflection Temperature | ASTM D648 | °C | 131 | 156 | 131 |
| Tensile Sstrength | ASTM D638 | | | | |
| 0.2% offset | | psi | 5,000 | 5,400 | 6,800 |
| Ultimate | | psi | 10,300 | 12,900 | 12,300 |
| Tensile Elongation | | | | | |
| 0.2% offset | | % | 1.3 | 1.4 | 1.7 |

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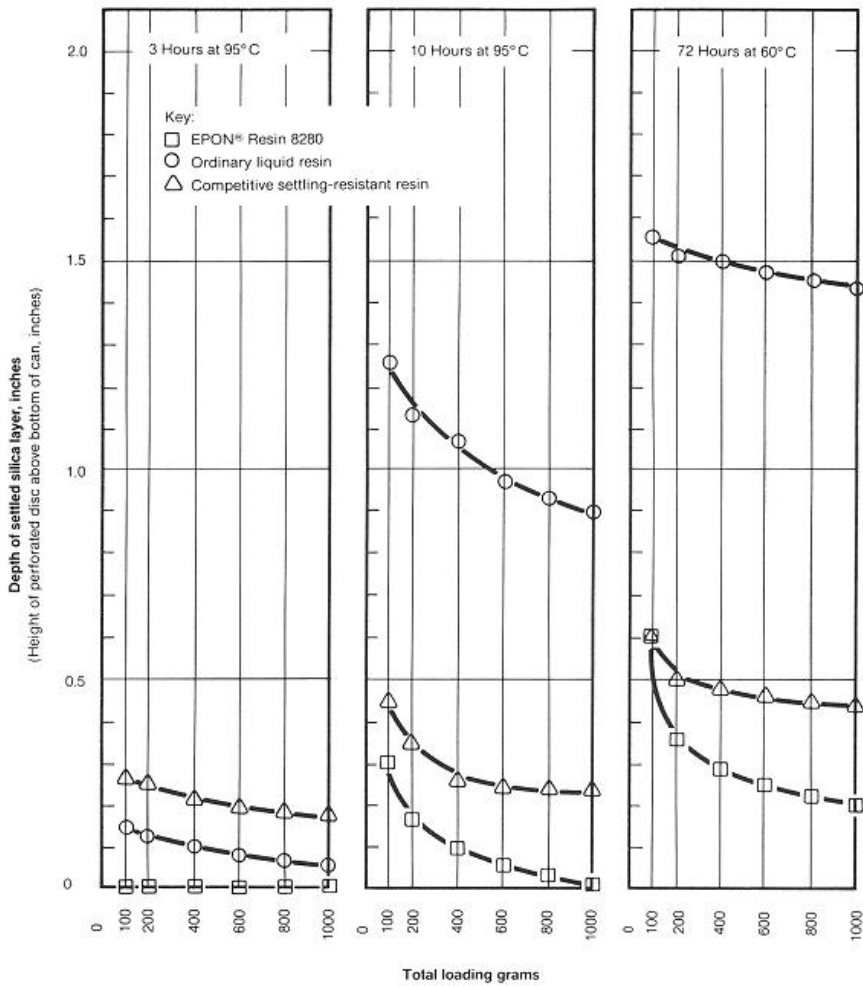
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| | Method | Units | A | B | C |
|----------------------------------|-----------|-------------|--------|--------|--------|
| Ultimate | | % | 5.3 | 6.8 | 5.8 |
| Tensile Modulus | | ksi | 420 | 470 | 450 |
| Flexural Strength | ASTM D790 | psi | 14,100 | 16,900 | 17,900 |
| Compressive Strength | | | | | |
| 0.2% offset | | psi | 6,900 | 8,900 | 11,400 |
| At yield | | psi | 16,600 | 18,900 | 16,900 |
| Compressive Deformation | | | | | |
| 0.2% offset | | % | 1.7 | 2.0 | 2.5 |
| At yield | | % | 9.8 | 9.1 | 6.1 |
| Compressive Modulus | | ksi | 450 | 470 | 490 |
| Izod Impact, notched | ASTM D256 | ft.·lb./in. | 0.47 | 0.49 | 0.38 |
| Chemical Resistance ² | | | | | |
| 24 hr - water boil | | % | 1.1 | 0.82 | 0.65 |
| 3 hr - actone boil | | % | 0.25 | 0.37 | 1.59 |

¹ Plus 1 phr BDMA.

² Percent weight gain after immersion.

Figure 1 / Filler Settling Resistance for Three Resin Systems¹



Test Methods

As defined in "A Simple Pigment-Settling Gage and A Simple Anti-Sag Test," Temple C. Patton (Baker Castor Oil Co.). Official Digest, Federation of Paint and Varnish Production Clubs, January 1957.

¹ Each system comprised of 44% wt. resin, 6% wt. low viscosity monoepoxide diluent, 50% wt. finely divided silica

Safety, Storage & Handling

Please refer to the MSDS for the most current Safety and Handling information.

Please refer to the Westlake Epoxy web site for Shelf Life and recommended Storage information.

Exposure to these materials should be minimized and avoided, if feasible, through the observance of proper precautions, use of appropriate engineering controls and proper personal protective clothing and equipment, and adherence to proper handling procedures. None of these materials should be used, stored, or transported until the handling precautions and recommendations as stated in the Material Safety Data Sheet (MSDS) for these and all other products being used are understood by all persons who will work with them. Questions and requests for information on Westlake Epoxy products should be directed to your Westlake Epoxy sales representative, or the nearest Westlake Epoxy sales office. Information and MSDSs on non-Westlake Epoxy products should be obtained from the respective manufacturer.

Packaging

Available in bulk and drum quantities.

Contact Information

For product prices, availability, or order placement, visit the [Contact Us](#) section of our website. For literature and technical assistance, visit our website at: www.westlakeepoxy.com

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