HEXION

Technical Data Sheet

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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 Specification

Property	Units	Value	Test Method/Standard
Weight per Epoxide	g/eq	185 – 195	ASTM D1652
Viscosity at 25°C	P	110 – 150	ASTM D445
Color	Gardner	1 max.	ASTM D1544

Typical Properties

Property	Units	Value	Test Method/Standard
Specific gravity @ 20°C	g/ml	1.168	
Density at 20°C	lb/gal	9.7	ASTM D1475
Refractive index @ 25°C		1.570-1.575	

Pro**cessing/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.

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**

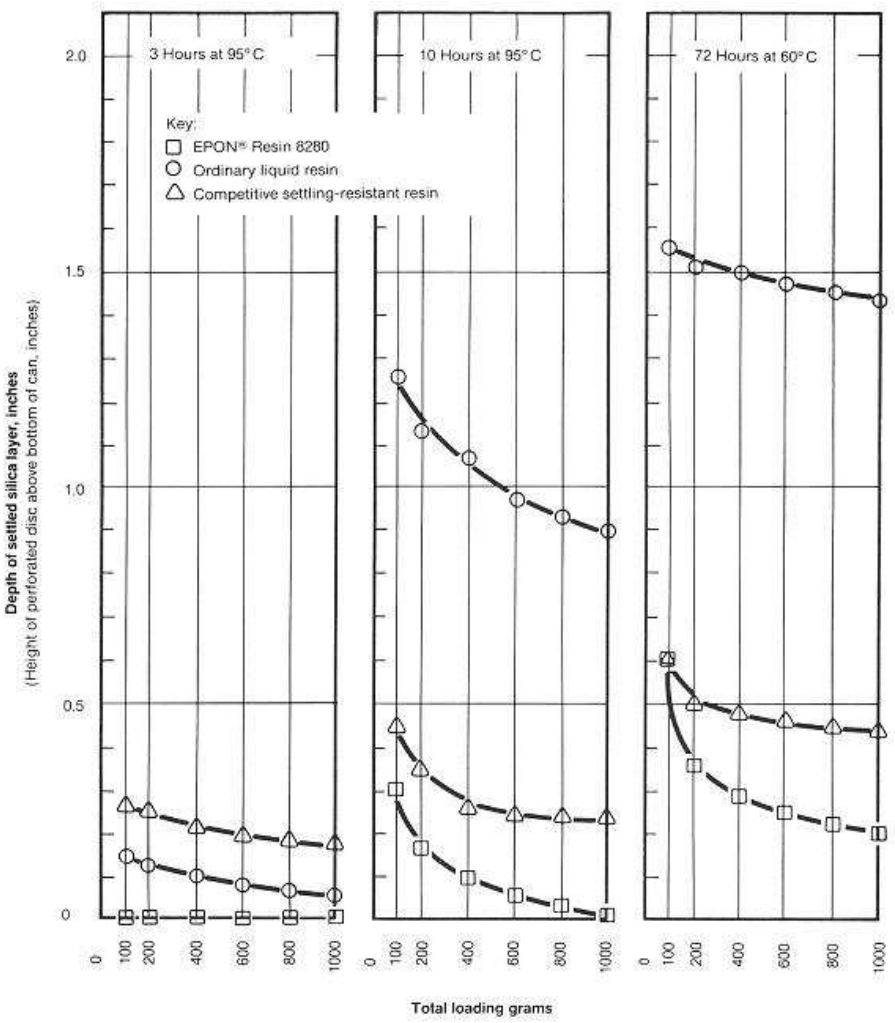
	Method	Units	A	B	C

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
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 Systems** [1]



Test Method
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 Hexion 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 Hexion Inc. ("Hexion")

products should be directed to your Hexion sales representative, or the nearest Hexion sales office. Information and MSDSs on non-Hexion products should be obtained from the respective manufacturer.

Packaging
Available in bulk and drum quantities.

Contact Information
For product prices, availability, or order placement, call our toll-free customer service number at: 1-877-859-2800

For literature and technical assistance, visit our website at: www.hexion.com

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