HEXION
Responsible Chemistry

Technical Data Sheet

EPON™ Resin 8281

Product Description

EPON™ Resin 8281 was developed for use in formulating highly filled compounds, particularly those with high levels of silica-type fillers. This resin allows the formulator to compound materials suitable for use in a wide variety of products, including adhesives, electrical encapsulants and molding compounds, tooling compounds, and most construction end uses

Application Areas/Suggested Uses

- Electrical encapsulation
- High solids coatings

Benefits

- Excellent resistance to pigment and filler settling
- Low saponifiable chlorine level
- Superior resistance to foaming under vacuum
- Viscosity stability comparable to other conventional liquid EPON Resins

Sales Specifications

Property	Value	Unit	Test Method
Color	1 max.	Gardner	ASTM D1544
Viscosity at 25°C	110 - 140	P	ASTM D445
Weight per Epoxide	182 - 195	g/eq	ASTM D1652

Typical Properties

Property	Value	Unit	Test Method
Density at 25°C	9.7	lb/gal	ASTM D1475
Epichlorohydrin Content	1 max.	ppm	
	<0.1		

Property	Processing/How to use General Information	Value	Unit	Test Method

Formulations using EPON Resin 8281 meet the requirements of the electronics industry for electrical and dimensional stability, high physical strength, excellent chemical resistance and good electrical properties

Filler Settling Characteristics

EPON Resin 8281 exhibits superior resistance to filler settling. In the most severe test, 72 hours at 60 °C, EPON Resin 8281 exhibited no settling of filler. This was measured by incorporating 50% by weight silica filler, under high shear conditions, into EPON Resin 8281. After evacuating the entrapped air, the mixture was placed in a 60 °C oven for 72 hours. The mixture was removed from the oven and by use of a metal stirring rod, tested for any filler build-up on the bottom or sides of the container.

Performance Properties

Table 1 / EPON Resin 8281 – Properties of Cured Castings [1]

	Method	Units	A	B	C
EPON Resin 8281		pbw	100	100	100
EPIKURE™ Curing Agent 3234 (TETA)		pbw	14	---	---
ANCAMINE™ Y [2]		pbw	---	25	---
Methyl tetrahydrophthalic anhydride (MTHPA)		pbw	---	---	80
2-ethyl-4-methylimidazole (EMI-24)		pbw	---	---	0.5
Cure Schedule		hr/°C	24 / 23 + 2 /150	2 / 80 + 4 / 150	2 / 105 + 4 / 150
Cured State Properties					
Tg by DSC – midpoint	ASTM D648	°C	140	172	153
Tensile Strength	ASTM D638				
at 25°C		psi	10,200	12,300	11,700

Property		Method Value	Units	A	B	C	Unit	Test Method
	at 100°C		psi	4,100	7,600	6,000		
	Tensile Elongation							
	at 25°C		%	6.0	7.9	7.9		
	at 100°C		%	8.4	8.3	6.4		
	Tensile Modulus							
	at 25°C		ksi	41	41	45		
	at 100°C		ksi	27	31	41		
	Flexural Strength	ASTM D790	psi	16,600	18,500	19,800		
	Flexural Modulus		ksi	48	46	49		
Iron Content	Compressive Strength		psi	15,300	17,400	15,900		
	Compressive Deformation		psi	19.0	19.1	19.1		
	Compressive Modulus		ksi	30	27	32.6		
	Coefficient of Thermal Expansion	TMA						
	at -25 to 75°C		ppm/°C	66	61	69		
	at 150 to 200°C		ppm/°C	171	158	181		
	Density @ 22°C		g/ml	1.18	1.19	1.20		
	Chemical Resistance [3]							
	24 hr - water boil		%	0.44	1.0	2.3		

Property		Method Value	Units	A	B	C	Unit	Test Method
	3 hr - actone boil		%	1.2	0.93	0.73		
	Electrical Properties							
	Dielectric Constant, 1 MHz	ASTM D150		3.5	3.9	3.4		
	Dissipation Factor, 1 MHz			0.029	0.033	0.015		
	Volume Resistivity @23°C		ohm•cm	2×10^{16}	4×10^{16}	3×10^{16}		
	Surface Resistivity @23°C		ohm•cm	13×10^{16}	19×10^{16}	26×10^{16}		

[1] Typical for unfilled, 1/8 inch castings prepared with amine and anhydride curing agents.

[2] Available through Air Products.

[3] Percent weight gain after immersion

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.

This particular resin is quite stable and does not exhibit increased viscosity if stored at or below 120 °F. However, it is recommended that this resin be stored in a cool place in tight, sturdy containers away from sparks and open flames

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, please contact customer service:

www.hexion.com/Contacts/

Property	For literature and technical assistance, visit our website at: www.hexion.com Value	Unit	Test Method