

Technical Data Sheet

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EPIKURE™ Curing Agent 3295

Product Description

EPIKURE™ Curing Agent 3295, a very low viscosity aliphatic amine adduct, is recommended for curing epoxy resins at room or moderately elevated temperatures. Its reduced vapor pressure, less critical combining ratio, superior electrical properties, and non-fuming characteristics make it safer and more convenient to handle than the aliphatic polyamines such as diethylenetriamine. EPIKURE 3295 is ideally suited for many casting, laminating, and impregnation operations and certain coating applications. It can be diluted with water and is useful as a curing agent for aqueous resin systems.

Application Areas/Suggested Uses

- Brush head potting compounds
- Laminated and cast tooling
- High-build maintenance coatings
- Water-dilutable adhesives

Sales Specification

Property	Units	Value	Test Method/Standard
Amine as KOH	mg/g	881 – 961	ASTM D2896
Viscosity at 25°C	cP	125 – 205	ASTM D2196
Color	Gardner	3 max.	ASTM D1544

Typical Properties

Property	Units	Value	Test Method/Standard
Equivalent weight, approx.		45	
Pounds/gallon @ 25 °C	lbs/gal	8.28	ASTM D1475
Flash Point	°F	>200	Setaflash

General Information

EPIKURE Curing Agent 3295 is relatively reactive and imparts a high degree of rigidity and mechanical strength to cured systems. The pot life, exothermic temperature rise and curing time of compositions containing EPIKURE Curing Agent 3295 depend on batch size, filler type, filler loading, and temperature.

For example, a 1-pound batch of a mixture containing EPON™ Resin 828 and EPIKURE Curing Agent 3295 blended at room temperature has a pot life of less than 20 minutes and develops a maximum temperature above 200 °C (392 °F).

Unfilled compositions based on EPON 828 and EPIKURE 3295, in thin sections where exothermic heat is readily dissipated, require 6 to 12 hours at room temperature to gel and develop handling strength; full strength is reached after several days. Although castings as thick as 1 inch can be prepared under carefully controlled conditions, the maximum thickness recommended for the unfilled composition is about 1/2 inch. At this thickness the composition's exotherm temperature rises to 120 °C when cast at room temperature, and handling strength develops in about 30 minutes.

While thin sections can be cured rapidly at moderately elevated temperatures, thicker sections should be allowed to gel at room temperature before curing at elevated temperatures. A cure at room temperature requires several days, but the properties, as shown in Table 1, are improved with a post cure of 2 hours at 100 °C. For castings thicker than 1/2 inch, a mixture of EPIKURE Curing Agent 3295 and EPIKURE Curing Agent 3046 should be used. Addition of an inert filler to the composition reduces the exothermic temperature rise of the system making possible the preparation of larger castings.

For low viscosity applications, EPIKURE Curing Agent 3295 can be used with reactive diluents or diluent-containing blends such as EPON Resin 815 and EPON Resin 813. Of the low viscosity, reactive diluent-containing systems, EPON 813 provides the best strength properties while EPON 815 imparts higher impact strength. Flexibility can be imparted to systems cured with EPIKURE 3295 by including in the epoxy resin portion a flexibilizing epoxy resin such as HELOXY™ Modifiers, 32 or 505 or EPON Resin 832. A property profile is shown in Table. 1.

Performance Properties

Table 1 / Properties of Systems Cured with EPIKURE Curing Agent 3295

	<u>Method</u>	<u>Units</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
EPON™ Resin 828		pbw	100	---	---	40	100
EPON Resin 815		pbw	---	100	---	---	---
EPON Resin 813		pbw	---	---	100	---	---
EPON Resin 8021		pbw	---	---	---	60	---
EPIKURE Curing Agent 3295		pbw	25	25	25	29	25

Handling Properties @ 25°C

Viscosity	cP	2,620	465	440	450	2,620
Gel Time, 100 gram mass	minutes	26	37	29	16	26
Peak Exotherm, 100 grams	°C	212	202	206	154	212
	°F	414	396	403	309	414

Cure Schedule		hrs/°C	16/25	16/25	16/25	16/25	---
			2/100	2/100	2/100	2/100	
		wks/°C	---	---	---	---	2/25
Cured State Properties ¹							
Heat Deflection	ASTM D648	°C	107	79	68	60	63
Temperature							
Tensile Strength	ASTM D638	psi	10,150	10,250	11,500	9,200	9,300
Tensile Elongation at break		%	4.0	6.5	3.1	4.6	2.1
Flexural Strength	ASTM D790	psi	18,200	17,150	18,800	14,000	14,900
Flexural Modulus, Initial		ksi	580	550	460	500	430
Izod impact, notched	ASTM D256	ft.-lb./in.	0.38	0.56	0.42	0.28	0.44
Hardness		Shore D	86	85	86	82	84
Chemical Resistance ²							
Distilled Water		%	0.17	0.19	0.13	0.22	0.18
5% Acetic Acid		%	0.39	0.86	0.95	1.41	---
50% Xylene/50% Isopropanol		%	0.01	0.01	0.62	0.53	---
Electrical Properties							
Dielectric constant, at 106 Hz	ASTM D150		4.03	3.97	3.83	4.08	---
Dissipation factor, at 106 Hz			0.032	0.027	0.019	0.029	---
Volume resistivity							
at 25 °C		ohm-cm	>10 ¹⁶	>10 ¹⁶	>10 ¹⁶	---	---
at 66 °C		ohm-cm	1.8 x 10 ¹⁴	5.3 x 10 ¹³	7.4 x 10 ¹²	---	---
at 93 °C		ohm-cm	3.9 x 10 ¹²	6.6 x 10 ¹⁰	1.8 x 10 ¹⁰	---	---
at 130 °C		ohm-cm	4.8 x 10 ⁹	>10 ⁹	>10 ⁹	---	---

¹ Determined on 1/8" thick test specimens at 25 °C. Systems A, B, C and D were cured for 16 hours at 25 °C, followed by 2 hours at 100 °C. System E was cured for 2 weeks at 25 °C.

² Percent weight gain after immersion for 24 hours at 25 °C.

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.

EPIKURE Curing Agent 3295 should be stored in tightly sealed containers, in a dry location at normal room temperature.

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/

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

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