

Technical Data Sheet

Re-issued August 2005

EPIKURE™ Curing Agent 3046

Product Description

EPIKURE™ Curing Agent 3046, an aliphatic amidoamine, is in the same class as EPIKURE Curing Agent 3055. The useful combining ratio with EPON™ Resin 828, varying from 35 to 100 parts per 100 parts resin, makes EPIKURE Curing Agent 3046 a very versatile ambient temperature curing agent.

Application Areas/Suggested Uses

- General purpose

Benefits

- Low viscosity
- Immediate compatibility
- Long working life
- Variable combining ratio

Sales Specification

Property	Units	Value	Test Method/Standard
Amine value	g/eq	413-441	ASTM D2896
Viscosity at 25°C	cP	120-280	ASTM D2196
Color	Gardner	<13	ASTM D1544

Typical Properties

Property	Units	Value	Test Method/Standard
Equivalent weight, approx.		90	
Pounds/gallon @ 25 °C	lbs/gal	7.8	ASTM D1475

General Information

EPIKURE Curing Agent 3046 provides a working life of several hours at normal room temperatures, yet cures to handling strength in thin sections overnight at temperatures above 60 °F. Good strength properties are generally achieved within three days and an essentially complete cure is obtained within two weeks at room temperature. The gel times and maximum exotherms for several formulations cast at normal room temperature at a thickness of 1/2 inch are listed in Table 1.

Optimum properties are obtained at 50 parts per 100 parts resin in combination with an unmodified epoxy resin such as EPON Resin 828. Although the heat deflection temperature is improved with an elevated temperature post cure, most other properties are as good or slightly better in a room temperature cure; impact resistance is particularly high. The effect of curing agent level, reactive diluents and cure schedule on properties is illustrated by data presented in Table 2.

Performance Properties

Table 1 / **Reactivity of Epoxy Systems with EPIKURE Curing Agent 3046**

	<u>Units</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
EPON™ Resin 828	pbw	100	100	100	
EPON Resin 813	pbw				100
EPIKURE Curing Agent 3046	pbw	40	50	60	50

Handling Properties @ 25°C¹

Gel Time, 100 gram mass	hrs	4.5	4.25	4	8
Peak Exotherm, 100 gram mass	°C	36	38	39	37
	°F	97	100	102	99

¹ Equal volume combining ratio.

Table 2 / **Epoxy Systems Cured with EPIKURE™ Curing Agent 3046**

	<u>Method</u>	<u>Units</u>	<u>A</u>	<u>B</u>	<u>C</u> ¹	<u>D</u>	<u>E</u>
EPON Resin 828		pbw	100	100	100	---	100
EPON Resin 813		pbw	---	---	---	100	---
EPIKURE Curing Agent 3046		pbw	50	60	80.5	50	50
Handling Properties @ 25° C			---	---	---	---	---
Initial viscosity		cP	1,600	1,200	1,000	445	1,600
Gel Time, 100 gram mass		hrs	4.25	4	5	8	4.25

Cured State Properties ²

HDT	ASTM D648	°C	62	---	---	---	73
Tensile strength	ASTM D638	psi	9,000	7,300	5,900	6,600	8,500
Tensile elongation at break		%	4.0	4.5	15	18	5.5
Flexural strength	ASTM D790	psi	14,800	13,600	9,450	11,150	13,750
Initial flexural modulus, 10 ⁶		psi	0.43	0.37	0.26	0.33	0.39
Ultimate compressive strength		psi	15,000	---	---	---	26,000
Compressive strength at yield		psi	11,300	---	---	---	10,600
Izod impact, notched	ASTM D256	ft. • lb./in.	0.51	---	---	---	0.75
Hardness	Shore D		82	81	81	80	83
Water absorption ³		%	0.21	0.26	0.52	0.31	0.22
Linear shrinkage ⁴		inch/inch	0.0017	0.0019	0.0022	0.0015	---

Electrical Properties

Dielectric constant ⁵	ASTM D150		3.41	3.36	3.30	3.26	3.33
Dissipation factor ⁵			0.012	0.013	0.016	0.011	0.017
Volume resistivity							
at 25 °C		ohm • cm	3.4(10 ¹⁵)	4.4(10 ¹⁵)	2.1(10 ¹⁵)	3.6(10 ¹⁵)	3.6(10 ¹⁵)
at 66 °C		ohm • cm	1.4(10 ¹³)	5.1(10 ¹²)	7.5(10 ¹¹)	2.4(10 ¹¹)	6.2(10 ¹⁴)
at 93 °C		ohm • cm	5.2(10 ¹¹)	7.8(10 ¹⁰)	7.6(10 ⁹)	2.9(10 ⁹)	4.8(10 ¹¹)
at 130 °C		ohm • cm	3.1(10 ⁹)	<10 ⁹	<10 ⁹	<10 ⁹	2.4(10 ⁹)

¹ Equal volume combining ratio.

² Determined on 1/8-inch thick test specimens at 25 °C. Systems A, B, C and D were cured for 3 weeks at 25 °C. System E was cured for 16 hours at 25 °C, followed by 2 hours at 100 °C.

³ Percent weight gained after 24 hours immersion in water at 25 °C.

⁴ ERF 12-74, Model size #1 (195 ml).

⁵ Determined at 106 Hertz.

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 curing agent product may crystallize after extended storage times. It can be reconstituted by gentle warming of the entire container and its contents to approximately 80°C (176°F) until all visual evidence of

crystallization has gone away. Upon cooling to normal ambient temperature conditions the product will regain its original liquid state physical properties.

EPIKURE Curing Agent 3046 should be stored in tightly sealed containers, in a dry location at normal room temperature. Care should be taken to avoid storage environments resulting in moisture contamination. Exposure to moisture causes an increase in viscosity and reactivity, the degree of increase depending on the amount of moisture which has been absorbed.

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

© and ™ Licensed trademarks of Hexion Inc.

DISCLAIMER

The information provided herein was believed by Hexion Inc. ("Hexion") to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Hexion are subject to Hexion's terms and conditions of sale. **HEXION MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HEXION,** except that the product shall conform to Hexion's specifications. Nothing contained herein constitutes an offer for the sale of any product.

PDS-2039- (Rev.7/15/2015 11:22:32 AM)