

## Technical Data Sheet

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### EPIKURE™ Curing Agent 3282

#### Product Description

EPIKURE™ Curing Agent 3282, a very reactive modified aliphatic amine adduct, has been developed for applications where relatively short cure periods at room temperature are required.

#### Application Areas/Suggested Uses

- Tooling gel coats
- Laminating compounds
- Adhesives

#### Sales Specification

| Property          | Units   | Value       | Test Method/Standard |
|-------------------|---------|-------------|----------------------|
| Amine as KOH      | mg/g    | 761-809     | ASTM D2896           |
| Viscosity at 25°C | cP      | 2,900-4,900 | ASTM D2196           |
| Color             | Gardner | 6           | ASTM D1544           |
|                   |         |             |                      |

#### Typical Properties

| Property                   | Units   | Value | Test Method/Standard |
|----------------------------|---------|-------|----------------------|
| Equivalent weight, approx. |         | 38    |                      |
| Pounds/gallon @ 25 °C      | lbs/gal | 8.92  | ASTM D1475           |
| Flash Point                | °F      | >200  | Setaflash            |
|                            |         |       |                      |

#### General Information

Compositions based on EPON™ Resin 828 and EPIKURE Curing Agent 3282 cure readily at room temperature. The pot life of such compositions is highly dependent on the volume of the mixture, temperature, amount and type of filler loading, and, to a lesser extent, the presence of a reactive diluent. An indication of the reactivity of several unfilled systems under varying conditions is presented in Table 1.

EPIKURE Curing Agent 3282 is normally used at a weight ratio of 20 parts per 100 parts of liquid epoxy resin. Thin sections, where exothermic heat is readily dissipated, require 4 to 8 hours for the composition to cure to handling strength. The composition reaches full cure after 4 to 7 days. Thin sections may be cured

rapidly at moderately elevated temperatures, but thick sections should be allowed to exotherm before heat is applied. The maximum thickness recommended for an unfilled composition is approximately 1/2 inch. Maximum high temperature properties are obtained with a post cure of about 2 hours at 93 to 121 °C.

### Performance Properties

Table 1 / **Reactivity of compositions containing EPIKURE™ Curing Agent 3282**

|                           | <u>Units</u> | <u>A</u> | <u>B</u> | <u>C</u> |
|---------------------------|--------------|----------|----------|----------|
| EPON™ Resin 828           | pbw          | 100      | ---      | 80       |
| EPON Resin 815            | pbw          | ---      | 100      | ---      |
| HELOXY™ Modifier 61       | pbw          | ---      | ---      | 20       |
| EPIKURE Curing Agent 3282 | pbw          | 20       | 20       | 20       |

### Handling Properties @ 25°C

| Weight,<br><u>grams</u> | Thickness,<br><u>inch</u> | Gel<br>Time,<br><u>min.</u> | Maximum   |           | Gel<br>Time,<br><u>min.</u> | Maximum   |           | Gel<br>Time,<br><u>min.</u> | Maximum   |           |
|-------------------------|---------------------------|-----------------------------|-----------|-----------|-----------------------------|-----------|-----------|-----------------------------|-----------|-----------|
|                         |                           |                             | <u>°F</u> | <u>°C</u> |                             | <u>°F</u> | <u>°C</u> |                             | <u>°F</u> | <u>°C</u> |
| 100                     | 2                         | 15                          | 400       | 204       | 16                          | 385       | 196       | 17                          | 375       | 191       |
| 50                      | 1                         | 16                          | 350       | 177       | 18                          | 315       | 157       | 24                          | 300       | 149       |
| 25                      | 1                         | 19                          | 320       | 160       | 22                          | 270       | 132       | 31                          | 225       | 107       |
| 10                      | 3/16                      | 90                          | 93        | 34        | 120                         | 77*       | 25*       | 150                         | 77*       | 25*       |

\* No exothermic temperature rise.

A comparison of the properties of three formulations cured with EPIKURE Curing Agent 3282 is presented in Table 2. With the exception of heat deflection temperature, the properties of post-cured formulations are only slightly better than those cured at room temperature. The major effect of the reactive diluent in the low viscosity systems is on the elevated temperature physical properties of the cured formulations.

Table 2 / **Properties of Systems Cured with EPIKURE Curing Agent 3282**

|                           | <u>Method</u> | <u>Units</u> | <u>A</u> | <u>B</u> | <u>C</u> | <u>D</u> | <u>E</u> | <u>F</u> |
|---------------------------|---------------|--------------|----------|----------|----------|----------|----------|----------|
| EPON Resin 828            |               | pbw          | 100      | 100      | ---      | ---      | 80       | 80       |
| EPON Resin 815            |               | pbw          | ---      | ---      | 100      | 100      | ---      | ---      |
| HELOXY Modifier 61        |               | pbw          | ---      | ---      | ---      | ---      | 20       | 20       |
| EPIKURE Curing Agent 3282 |               | pbw          | 20       | 20       | 20       | 20       | 20       | 20       |

### Handling Properties @ 25°C

|                    |    |        |        |     |     |     |     |
|--------------------|----|--------|--------|-----|-----|-----|-----|
| Viscosity, Initial | cP | 10,000 | 10,000 | 800 | 800 | 450 | 450 |
|--------------------|----|--------|--------|-----|-----|-----|-----|

|                                     |           |               |                      |        |                      |        |                      |        |
|-------------------------------------|-----------|---------------|----------------------|--------|----------------------|--------|----------------------|--------|
| Gel Time, 100 gram mass             |           | minutes       | 15                   | 15     | 16                   | 16     | 17                   | 17     |
| Cure Schedule                       |           | hrs/°C        | 16/25                |        | 16/25                |        | 16/25                |        |
|                                     |           |               | 2/100                |        | 2/100                |        | 2/100                |        |
|                                     |           | wk/°C         |                      | 3/25   |                      | 3/25   |                      | 3/25   |
| Cured State Properties <sup>1</sup> |           |               |                      |        |                      |        |                      |        |
| Heat Deflection Temperature         | ASTM D648 | °C            | 99                   | 60     | 73                   | 50     | 50                   | 46     |
| Tensile Strength                    | ASTM D638 | psi           | 11,000               | 10,000 | 10,500               | 9,500  | 9,500                | 9,000  |
| Tensile Elongation at break         |           | %             | 3.8                  | 0.8    | 6.8                  | 3.8    | 10.0                 | 6.0    |
| Flexural Strength                   | ASTM D790 | psi           | 19,900               | 18,500 | 19,400               | 18,000 | 15,700               | 15,300 |
| Flexural Modulus                    |           | ksi           | 550                  | 580    | 520                  | 550    | 490                  | 510    |
| Compressive Strength, yield         |           | psi           | 16,100               | 14,500 | 14,500               | 13,500 | 13,250               | 12,500 |
| Izod impact, notched                | ASTM D256 | ft. • lb./in. | 0.46                 | 0.36   | 0.44                 | 0.34   | 0.41                 | 0.32   |
| Hardness                            |           | Shore D       | 90                   | 89     | 89                   | 87     | 88                   | 86     |
| Weight loss <sup>2</sup>            |           | %             | 0.10                 | 0.18   | 0.72                 | 0.68   | 1.57                 | 1.68   |
| <b>Chemical Resistance</b>          |           |               |                      |        |                      |        |                      |        |
| Water absorption <sup>3</sup>       |           | %             | 0.10                 | 0.10   | 0.15                 | 0.15   | 0.20                 | 0.19   |
| Electrical Properties               |           |               |                      |        |                      |        |                      |        |
| Dielectric constant <sup>4</sup>    | ASTM D150 |               | 4.19                 | ---    | 4.20                 | ---    | 4.20                 | ---    |
| Dissipation factor <sup>4</sup>     |           |               | 0.026                | ---    | 0.024                | ---    | 0.023                | ---    |
| Volume resistivity                  |           |               |                      |        |                      |        |                      |        |
| at 25 °C                            |           | ohm•cm        | 2.8x10 <sup>16</sup> | ---    | 1.5x10 <sup>16</sup> | ---    | 6.1x10 <sup>15</sup> | ---    |
| at 66 °C                            |           | ohm•cm        | 1.0x10 <sup>15</sup> | ---    | 4.2x10 <sup>13</sup> | ---    | 2.2x10 <sup>11</sup> | ---    |
| at 93 °C                            |           | ohm•cm        | 8.0x10 <sup>12</sup> | ---    | 1.8x10 <sup>11</sup> | ---    | 6.1x10 <sup>9</sup>  | ---    |
| at 130 °C                           |           | ohm•cm        | 6.0x10 <sup>10</sup> | ---    | <10 <sup>9</sup>     | ---    | <10 <sup>9</sup>     | ---    |

<sup>1</sup> Determined on 1/8-inch thick test specimens at 25 °C. Systems A,C and E were cured for 16 hours at 25 °C followed by a post cure of 2 hours at 100 °C. Systems B,D and F were cured for 3 weeks at 25 °C.

<sup>2</sup> Percent weight loss after 24 hours at 150 °C.

<sup>3</sup> Percent weight gain after 24 hours immersion at 25 °C.

<sup>4</sup> 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.

EPIKURE Curing Agent 3282 should be stored in tightly sealed, completely filled containers of metal, glass, or polyolefin plastic at normal room temperatures. The curing agent may darken during long-term storage, the extent of color formation depending on storage temperature and exposure to air.

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/](http://www.hexion.com/Contacts/)

For literature and technical assistance, visit our website at: [www.hexion.com](http://www.hexion.com)

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