**D.E.H.™ 650**
Epoxy Curing Agent

**Description**
D.E.H.™ 650 curing agent is an aromatic amine suitable for curing liquid epoxy resins at elevated temperatures.

**Advantages**
- Good pot life
- Low viscosity
- High heat resistance

**Typical Applications**
This product is suitable for use in applications such as:
- Filament Wound Pipes
- Fittings
- Tanks

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Property(1)</th>
<th>Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appearance</td>
<td>Visual</td>
<td>Dark redish brown</td>
</tr>
<tr>
<td></td>
<td>Density @ 25°C (g/ml)</td>
<td>ASTM D4052</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>Viscosity @ 25°C (mPa•s)</td>
<td>ASTM D445</td>
<td>365</td>
</tr>
<tr>
<td></td>
<td>Amine value [meq/g]</td>
<td>ISO 9702</td>
<td>10.9</td>
</tr>
<tr>
<td></td>
<td>Amine Hydrogen Equivalent Weight</td>
<td>Calculated</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Shelf Life (Months)</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

(1) Typical properties, not to be construed as specifications.

<table>
<thead>
<tr>
<th>Typical Handling Properties</th>
<th>Property</th>
<th>Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D.E.R. 383™</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D.E.H. 650</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gel Time (min/100 g mass @80°C)(2)</td>
<td></td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>Mix ratio, phr (weight)</td>
<td></td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

(2) Tested by Paul N. Gardner Standard Model Gel Timer
**Typical Performance Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix ratio, phr (weight)</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Glass Transition Temperature (°C)</td>
<td></td>
<td>196</td>
</tr>
<tr>
<td>Flexural Strength (psi)</td>
<td></td>
<td>885</td>
</tr>
<tr>
<td>Flexural Modulus (thousand psi)</td>
<td></td>
<td>422</td>
</tr>
<tr>
<td>% Strain at break</td>
<td></td>
<td>6.1</td>
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<tr>
<td>Tensile Modulus (thousand psi)</td>
<td></td>
<td>430</td>
</tr>
<tr>
<td>Elongation %</td>
<td></td>
<td>3.2</td>
</tr>
</tbody>
</table>

(3) Clear panel cured for 2 hours at 88°C, 2 hours at 150°C and 2 hours at 200°C.

(4) Glass transition temperature measured by DMTA

**Safety and Handling**

The Dow Chemical Company provides its customers with a product specific Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) to cover potential health effects, safe handling, storage, use and disposal information. Dow strongly encourages its customers to review the MSDS or SDS on its products and other materials prior to their use.

This curing agent should retain its chemical properties for a period of at least 6 months.


**Product Stewardship**

The Dow Chemical Company has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis of our Product Stewardship philosophy by which we assess the health and environmental information on our products and then take the appropriate steps to protect employee and public health and the environment. The Dow Chemical Company has enduring commitments to Responsible Care® in the management of chemicals worldwide. Our Product Stewardship program rests with every individual involved with Dow products from the initial concept and research to the manufacture, sale, distribution, and disposal of each product.

**Packaging, Storage and Shelf Life**

The D.E.H™ 650 Hardener is supplied in 200 kg tight-head drums. This hardener should retain its chemical properties for at least 12 months when stored in its original closed packaging, in a cool, dry environment, away from direct sunlight and at a temperature not over 25°C.
D.E.H.™ 23 Epoxy Curing Agent

**Description**
D.E.H.™ 23 Epoxy Curing Agent is a modified aliphatic polyamine based, solvent-free curing agent for epoxy resins. The product contains no benzyl alcohol.

**Benefits**
Due to its very low temperature / low exotherm reaction and long potlife, this curing agent is suitable for high processing temperatures and large-volume embedding compounds. Tack-free surfaces with good UV-stability and toughness are achieved.

**Applications**
- Adhesives
- Building & Civil Engineering
- Composites
- Paint & Coatings

<table>
<thead>
<tr>
<th>Dow Epoxy</th>
<th>Nominal Value</th>
<th>Unit</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHEW</td>
<td>63</td>
<td>g/eq</td>
<td></td>
</tr>
<tr>
<td>Viscosity, absolute (25°C)</td>
<td>5.00 to 25.0</td>
<td>mPa·s</td>
<td>ISO 3219</td>
</tr>
<tr>
<td>Colour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Gardner</td>
<td>1</td>
<td></td>
<td>ASTM D1544</td>
</tr>
<tr>
<td>Max. Pt-Co., Solution</td>
<td>35</td>
<td></td>
<td>ASTM D1209</td>
</tr>
<tr>
<td>Density (25°C)</td>
<td>0.940</td>
<td>g/cm³</td>
<td>ASTM D4052</td>
</tr>
<tr>
<td>Amine Value</td>
<td>454 to 488</td>
<td>mg KOH/g</td>
<td>ISO 9702</td>
</tr>
<tr>
<td>Pot Life (23°C, 100 g)</td>
<td>300</td>
<td>min</td>
<td>GELNORM</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Geltimer-TC ¹</td>
</tr>
</tbody>
</table>

**Notes**
These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ Reference Resin: D.E.R.™ 331

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For further handling information, consult the Dow brochure entitled, DOW Epoxy Curing Agents Product Stewardship Manual, Safe Handling and Storage, Form No. 296-01331 and the Dow technical bulletin, Product Coding, Shelf-life and Storage Stability, Form No. 296-01657.
Technical Information

D.E.H.™ 2132
Epoxy Curing Agent

Description
D.E.H.™ 2132 Epoxy Curing Agent is a modified, cycloaliphatic polyamine based epoxy curing agent. The product has low viscosity and is solvent-free.

Benefits
D.E.H.™ 2132 is recommended for mineral casting applications and is also suitable for heavy-filled mortars. It is especially suitable for products where low reactivity is required because it has a low exotherm release during reaction. Epoxy systems cured with D.E.H. 2132 have a high Heat Distortion Temperature (HDT).

Applications
- Building & Civil Engineering: Chemical Anchoring
- Building & Civil Engineering: Crack Injection
- Building & Civil Engineering: Mortars & Grouts
- Building & Civil Engineering: Primers & Impregnation
- Building & Civil Engineering: Roller Coating Flooring
- Building & Civil Engineering: Self-leveling Flooring
- Castings / Potting/ Encapsulation / Tooling

<table>
<thead>
<tr>
<th>Dow Epoxy</th>
<th>Nominal Value</th>
<th>Unit</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHEW</td>
<td>45</td>
<td>g/eq</td>
<td></td>
</tr>
<tr>
<td>Viscosity, absolute (25°C)</td>
<td>5.00 to 25.0</td>
<td>mPa·s</td>
<td>ISO 3219</td>
</tr>
<tr>
<td>Colour (Max. Gardner)</td>
<td>4</td>
<td></td>
<td>ASTM D1544</td>
</tr>
<tr>
<td>Amine Value</td>
<td>550 to 600</td>
<td>mg KOH/g</td>
<td>ISO 9702</td>
</tr>
</tbody>
</table>

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