High Temperature Potting Compounds
Hysol® EA 9820 & EA 9825

Henkel Aerospace
Bay Point, CA
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KRAYDEN, INC.
AUTHORIZED DISTRIBUTOR
1-800-448-0406
Description & Application

Description:
One component epoxy structural syntactic high temperature potting compounds offered in a low or intermediate density form for use on honeycomb composite parts requiring high compressive strength at temperatures up to 350°F.

- Hysol® EA 9825 - Low Density
- Hysol® EA 9820 - Intermediate Density

Application:
- Honeycomb core potting & edge sealing
  - Reinforcement for honeycomb sandwich panels
  - Fastener or attachment inserts
- Application Techniques
  - Automated, pneumatic or hand lay-up
Attributes & Features

- One Component Epoxy Syntactic “Non-expanding” Paste Adhesive
- Products Share Common Chemistry
- Offered in Two Density Forms (Low or Intermediate)
- Suitable Packaging Configurations for Application
- >8 Hours Pot Life & 24 hours Handling Life at 65-90°F (18-32°C)
- Extrusion Rate ≥ 800 g/min. (SEMCO® Cartridge)
- No Sag for Vertical Applications
- Co-curable with Sandwich Assembly
- Dual Cure or Step Cure Processing Capability
- High Compression Strength Performance up to 350°F (177°C)
- Long Term Heat Aging Performance at 350°F (177°C)
- 12 Month Shelf Life when Stored at or below 0°F (-18°C)
- Low Fluid Absorption <1.5% Wt. Gain
- Adhesive can be Drilled and Sanded without Damage
Packaging Configurations Offered

<table>
<thead>
<tr>
<th></th>
<th>Hysol EA 9820</th>
<th>Hysol EA 9825</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging Configurations Offered</td>
<td>6oz SEMCO Cartridge (185 g)</td>
<td>6oz SEMCO Cartridge (125 g)</td>
</tr>
<tr>
<td></td>
<td>12oz SEMCO Cartridge (370 g)</td>
<td>12oz SEMCO Cartridge (230 g)</td>
</tr>
<tr>
<td></td>
<td>5 gallon (33.07 lbs)</td>
<td>5 gallon (12 lbs)</td>
</tr>
</tbody>
</table>

- Ship & store at 0°F (-18°C) or below to maintain 12 months shelf life
- No shipping restrictions

**MSDS Section 14**
# Physical Property Performance

## Key Data Requirements

<table>
<thead>
<tr>
<th>Property</th>
<th>Hysol EA 9820</th>
<th>Hysol EA 9825</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Off-white</td>
<td>Off-white</td>
</tr>
<tr>
<td>Base</td>
<td>Modified Epoxy, non-expanding</td>
<td>Modified Epoxy, non-expanding</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Low flow, thixotropic paste</td>
<td>Low flow, thixotropic paste</td>
</tr>
<tr>
<td>Cured Density, g/cm(^3) (pcf)</td>
<td>1.12 (76)</td>
<td>0.72 (45)</td>
</tr>
<tr>
<td>Vertical Flow after 30 min., inches</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>77±2°F</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>125±5°F</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Extrusion Rate at 77°F / 80±5 psi / SEMCO w/o nozzle attached, g/min.</td>
<td>900</td>
<td>1000</td>
</tr>
<tr>
<td>Initial &amp; 8 hrs removal from freezer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handling Temp. °F</td>
<td>65-90</td>
<td>65-90</td>
</tr>
<tr>
<td>Pot Life, hrs</td>
<td>&gt;8</td>
<td>&gt;8</td>
</tr>
<tr>
<td>Handling Life, hrs.</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Shipping Conditions, °F</td>
<td>≤0</td>
<td>≤0</td>
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<tr>
<td>Shelf Life, months</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Warranty, months</td>
<td>6</td>
<td>6</td>
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</table>
Cure Process Recommendations

Hysol® EA 9820 & EA 9825

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Dual Cure</th>
<th>Step Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat-up Rate 1</td>
<td>2-5°F/min.</td>
<td></td>
</tr>
<tr>
<td>Cure Temp. 1</td>
<td>250°F or 350°F</td>
<td>250°F</td>
</tr>
<tr>
<td>Cure Time 1</td>
<td>90 min. at 250°F</td>
<td>90 min. at 250°F</td>
</tr>
<tr>
<td></td>
<td>60 min. at 350°F</td>
<td></td>
</tr>
<tr>
<td>Heat-up Rate 2</td>
<td>2-5°F/minute</td>
<td></td>
</tr>
<tr>
<td>Cure Temp. 2</td>
<td></td>
<td>350°F</td>
</tr>
<tr>
<td>Cure Time 2</td>
<td></td>
<td>60 min. at 350°F</td>
</tr>
<tr>
<td>Cool Down Rate</td>
<td>2-5°F/min.</td>
<td></td>
</tr>
<tr>
<td>Pressure Source</td>
<td>vacuum, clamping, press or autoclave</td>
<td></td>
</tr>
</tbody>
</table>

Autoclave  
Oven  
Press
Hysol EA 9820 Compression Strength Performance
250°F vs 350°F Cure

Cured Density Range: 1.12 - 1.16 g/cm³ (69.9 - 72.4 pcf)
Max. Req't.: 1.22 g/cm³ (76.2 pcf)

Compression Strength (KSI)

250°F Cure Test @ 77°F
350°F Cure Test @ 77°F
350°F Cure Heat Aging 500 hrs @ 350°F Test @ 77°F
250°F Cure Test @ 250°F
350°F Cure Test @ 350°F
350°F Cure Heat Aging 500 hrs @ 350°F Test @ 350°F

22.6
22.8
25.1
12.7
12.5
15.6

Requirement
(Sx Dimension: 0.5” x 1” x 2”)

Dry Tg (E’): 369°F (187°C)
Mechanical Property Performance
Hysol EA 9825

Hysol EA 9825 Compression Strength Performance
250°F vs 350°F Cure

<table>
<thead>
<tr>
<th>Temperature/Cure Type</th>
<th>Compression Strength (ksi)</th>
<th>Density (g/cm³)</th>
<th>Density (pcf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250°F Cure Test @ 77°F</td>
<td>13.3</td>
<td>0.73</td>
<td>45.6</td>
</tr>
<tr>
<td>350°F Cure Test @ 77°F</td>
<td>12.2</td>
<td>0.71</td>
<td>44.3</td>
</tr>
<tr>
<td>350°F Cure Test @ 300°F</td>
<td>8.6</td>
<td>0.71</td>
<td>44.3</td>
</tr>
</tbody>
</table>

Dry Tg (E'): 356°F (181°C)
Mechanical Property Performance
Hysol EA 9825 - Heat Aging

Hysol EA 9825
Compression Ultimate Strength Performance after Heat Aging
350°F Cure - Ultimate Strength

(Sx Dimension: 0.5” x 1” x 2”)
Cured Density Range: 0.74-0.77 g/cm³ (46.2 - 48.1 pcf)
Max. Requirement: 0.77 g/cm³ (48.1 pcf)

Tested @ 75°F
Initial (0 Day) Requirement

100% compression strength retention after 90 days at 350°F
Mechanical Property Performance Comparison
Hysol EA 9820 vs Hysol EA 9825

Compression Strength Performance Comparison
350°F Cure - Ultimate Strength

(Sx Dimension: 0.5” x 0.5” x 1”)

Compression (KSI)

Hysol EA 9820
1.12 g/cm³
(76 pcf)

Hysol EA 9825
0.75 g/cm³
(47 pcf)

13.8
14.6
7.2

22.0

Tested @ 75°F
Tested @ 350°F
Summary

- Offered in two density forms (Low or Intermediate)
- Application friendly (one component easy to extrude, pot and fill without crumbling)
- No sag for vertical applications
- Long handling life for shop applications
- Dual cure capability
- High compression strength performance at 250°F (121°C) or 350°F (177°C) cure schedules
- Compression strength retention after long term heat aging at 350°F (177°C)
- Qualified to Goodrich RMS 027 Specification Type XV & XVI.
- Significantly improved shelf life over the current qualified products. Key advantage for overseas subcontractors.
  - Shipping: 0°F (-18°C) or below to maintain 12 months shelf life
  - Warranty: 6 months from Date of Shipment