HexBond™ EA9686 STRUCTIL Adhesive Film

Description
HexBond™ EA9686 is a 120°C/250°F cure film adhesive designed for metal, composite and honeycomb bonding applications. Its formulation based on epoxy resin provides a structural resistance over a large temperature range with a good toughness.

Features
- Good peel strength
- Cure from 110°C/230°F to 135°C/275°F (the adhesive can withstand cure up to 177°C/350°F)
- Storage life: 1 year at or below -18°C/0°F + 4 weeks at room temperature (≤ 23°C/73°F)
- Low volatile content (< 1%)

Applications
- Metal-to-metal bonding
- Sandwich construction
- Composite-to-composite bonding

Form

<table>
<thead>
<tr>
<th></th>
<th>Areal Weight (psf // g/m²)</th>
<th>Color</th>
<th>Support</th>
<th>Roll Width (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA9686.03 NW</td>
<td>0.03 / 146</td>
<td>Pink</td>
<td>Nylon non-woven (17g/m²)</td>
<td>915</td>
</tr>
<tr>
<td>EA9686.06 K</td>
<td>0.06 / 292</td>
<td>Pink</td>
<td>Polyester knit (13 g/m²)</td>
<td>915</td>
</tr>
<tr>
<td>EA9686.09 K</td>
<td>0.09 / 438</td>
<td>Pink</td>
<td>Polyester knit (13 g/m²)</td>
<td>915</td>
</tr>
</tbody>
</table>

Instructions For Use
Refer to the Safety Data Sheet before handling.
- To avoid any moisture, allow the adhesive to warm at room temperature before opening the waterproof polyethylene bag
- Bonding surfaces should be clean, dry and properly prepared
- Remove protective liners before bonding (release paper and polyethylene film)
- Typical cure cycles: 5h at 110°C/230°F, 2h at 121°C/250°F, 1.5h at 135°C/275°F
  - Heat up rate: 0.5°C to 5.5°C/min (1°F to 10°F/min)
  - Pressure: 1.5 to 3.5 bar (22 to 51 psi) during whole cycle

HexBond™ EA9686 STRUCTIL viscosity while heating at 2°C/min (3.6°F/min)

Rheometer TA Instrument AR 500
Test settings:
- Parallel plate 25 mm
- Temperature: heat up at 2°C/min (3.6°F/min)
- 10% strain
- Frequency 10 rad/sec
- Gap 1200 µm

\[ \eta_{30} = 30 \text{ Pa.s at } 106°C/223°F \]
Bond Strength Performance After Cure

<table>
<thead>
<tr>
<th>Test</th>
<th>Test Temperature (°C/°F)</th>
<th>EA9686.03 NW</th>
<th>EA9686.06 K</th>
<th>EA9686.09 K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lap shear strength (1)</td>
<td>23 / 73</td>
<td>35 / 5067</td>
<td>39 / 5656</td>
<td>42 / 6091</td>
</tr>
<tr>
<td>(MPa / psi)</td>
<td>100 / 212</td>
<td>26 / 3770</td>
<td>28 / 4061</td>
<td>30 / 4351</td>
</tr>
<tr>
<td>120 / 248</td>
<td>22 / 3190</td>
<td>23 / 3335</td>
<td>25 / 3626</td>
<td></td>
</tr>
<tr>
<td>100 212 after WA (3)</td>
<td></td>
<td>14 / 2030</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floating roller peel (2)</td>
<td>23 / 73</td>
<td>200 / 45</td>
<td>208 / 47</td>
<td>205 / 46</td>
</tr>
<tr>
<td>(N/25 mm // lb/in)</td>
<td>100 / 212</td>
<td>205 / 46</td>
<td>210 / 47</td>
<td>212 / 47</td>
</tr>
</tbody>
</table>

Glass Transition Temperature

<table>
<thead>
<tr>
<th>Cure Cycle</th>
<th>State</th>
<th>Tg Onset (°C/°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5h at 110°C / 230°F</td>
<td>As received</td>
<td>129 / 264</td>
</tr>
<tr>
<td></td>
<td>Wet (3)</td>
<td>89 / 192</td>
</tr>
<tr>
<td>1.5h at 135°C / 275°F</td>
<td>As received</td>
<td>125 / 257</td>
</tr>
<tr>
<td></td>
<td>Wet (3)</td>
<td>89 / 192</td>
</tr>
</tbody>
</table>

(1) According to EN 2243-1, on aluminum 2024T3 clad treated with sulfo-chromic acid etch, cure 2h at 120°C/248°F (2°C/min)
(2) According to IGC 04.26.360B, on aluminum 2024T3 clad treated with sulfo-chromic acid etch, cure 2h at 120°C/248°F (2°C/min)
(3) Wet ageing: 70°C/158°F, 85% relative humidity, saturation

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For more information
Hexcel is a leading worldwide supplier of composite materials to aerospace and industrial markets. Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax™ multiaxial reinforcements
- HexPly® prepregs
- HexAM™ additive manufacturing
- HexMC® molding compounds
- HexFlow® RTM resins
- HexTool® tooling materials
- HexWeb® honeycombs
- Engineered core
- Acousti-Cap® sound attenuating honeycomb
- Engineered products
- Polyspeed™ laminates

For US quotes, orders and product information call toll-free 1-800-688-7734. For other worldwide sales office telephone numbers and a full address list, please go to:

http://www.hexcel.com/contact/salesoffice

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