

**LOCTITE**

# Structural Adhesive Solutions for Composite Repair



**Henkel**

# Proven Solutions for Composite Repair

Henkel's technical expertise is based on over 40 years of experience in aerospace applications. As a trusted partner of OEM and MRO customers, Henkel provides the optimum solution to meet the most rigorous industry requirements. Our proven technologies are listed in more than 5,000 aerospace specifications, which provides our customers with a broad portfolio of composite repair solutions.

With support from its authorized aerospace distribution network, Henkel delivers composite repair solutions for airline fleet requirements throughout the globe. Henkel offers its MRO customers products that meet major OEM qualifications in many ready-to-use size configurations.

Henkel offers adhesive solutions for a variety of composite repair requirements.



## Small Repair Applications

Industry standard solutions for composite repairs.



## Out-of-Autoclave Applications

Leading film adhesive composite repair solutions.



## Specialty Solutions

### Surfacing Film and Lightning Strike Repairs

Superior new technologies for composite repair requirements.



## Ready-to-use Packaging Solutions

### Barrier Cartridge Kit

#### Package Description:

- › Disposable plastic dispensing system.
- › Pre-packaged part A and part B system separated by a foil barrier.
- › Pre-measured 2 component system ensures full cure and product performance after mixing.
- › Available in 2.5 oz and 6 oz sizes.

#### Package Use:

- › Store material according to manufacturer's instructions in the original packaging from manufacturer.
- › For refrigerated materials, thaw materials to room temperature (72 °F +/- 5 °F, 22 °C +/- 2 °C) prior to use.
- › Remove kit from packaging and mix according to the instructions provided.
- › The total number of mixing strokes should be accomplished within the allowance for time noted on instructions.
- › Install kit in manual or pneumatic gun for extrusion of mixed material.
- › Dispose of properly.

Barrier Cartridge Kit



## Injection Cartridge Kit

### Package Description:

- › Disposable plastic dispensing system.
- › Pre-packaged part A in tube and part B in rod.
- › Pre-measured 2 component system ensures full cure and product performance after mixing.
- › Available in 2.5 oz and 6 oz sizes.

### Package Use:

- › Store material according to manufacturer's instructions in original packaging from manufacturer.
- › For refrigerated materials, thaw materials to room temperature (72 °F +/- 5 °F, 22 °C +/- 2 °C) prior to use.
- › Remove kit from packaging and mix according to instructions provided.
- › The total number of mixing strokes should be accomplished within the allowance for time noted on instructions.
- › Install kit in manual or pneumatic gun for extrusion of mixed material.
- › Dispose of properly.

Injection Cartridge Kit



## Dual Cartridge Kit

### Package Description:

- › Disposable plastic dispensing system.
- › Pre-packaged part A and part B in dual cartridge system.
- › Pre-measured 2 component system ensures full cure and product performance after mixing.
- › Available in 50 ml, 200 ml and 400 ml sizes.

### Package Use:

- › Store material according to manufacturer's instructions in original packaging from manufacturer.
- › For refrigerated materials, thaw materials to room temperature (72 °F +/- 5 °F, 22 °C +/- 2 °C) prior to use.
- › Install kit in manual or pneumatic gun with the static mix tip on the dual cartridge for extrusion of mixed material.
- › Dispense a small amount of material from the static mix tip prior to use.
- › Dispose of properly.

Dual Cartridge / Static Mixer Kit



## Clip Pack

### Package Description:

- › Pre-packaged part A and part B system separated by a clip divider.
- › Pre-measured 2 component system ensures full cure and product performance after mixing.
- › Available in 25 gram and 50 gram sizes.

### Package Use:

- › Store material according to manufacturer's instructions in original packaging from manufacturer.
- › For refrigerated materials, thaw materials to room temperature (72 °F +/- 5 °F, 22 °C +/- 2 °C) prior to use.
- › Remove kit from packaging and remove clip divider to mix.
- › Mix part A and part B in the sealed pouch until a uniform mix and color is achieved.
- › Dispose of properly.

Clip Pack



## Pudding Cups

### Package Description:

- › Pre-packaged part A and part B system provided in separate containers.
- › Pre-measured 2 component system ensures full cure and product performance after mixing.
- › Available in several sizes.

### Package Use:

- › Store material according to manufacturer's instructions in original packaging from manufacturer.
- › For refrigerated materials, thaw materials to room temperature (72 °F +/- 5 °F, 22 °C +/- 2 °C) prior to use.
- › Remove kit from packaging, empty part B into part A and fold the materials together with a mix handle.
- › To ensure full kit performance, use the entire contents of part A with part B.
- › Dispose of properly.

Pudding Cups





# Composites Repair Portfolio

| Repair Type                  | Bonding, Potting and Filling  |  |   |
|------------------------------|---|--|---|
| <b>Size Package Options</b>  | <ul style="list-style-type: none"> <li>› Clip Pack</li> <li>› Pudding Cup</li> <li>› Pints</li> <li>› Quarts</li> <li>› Gallons</li> <li>› Cartridge Kits</li> </ul>  | <ul style="list-style-type: none"> <li>› Clip Pack</li> <li>› Pudding Cup</li> <li>› Pints</li> <li>› Quarts</li> <li>› Gallons</li> <li>› Cartridge Kits</li> <li>› Dual Cartridge</li> </ul>   | <ul style="list-style-type: none"> <li>› Clip Pack</li> <li>› Quarts</li> <li>› Gallons</li> <li>› Cartridge Kits</li> </ul>  |
| <b>Technology</b>            | 2-part Epoxy  | 2-part Epoxy   | 2-part Epoxy  |
| <b>Color (A / B / Mixed)</b> | Gray / Amber / Gray   | Gray / Black / Gray  | Light Blue / Olive Brown-Black / Gray-Blue  |
| <b>Service Temperature*</b>  | 300 °F (149 °C)   | 350 °F (177 °C)  | 350 °F (177 °C)   |
| <b>Consistency</b>           | Thixotropic / 800 Poise @ 77 °F (25 °C)   | Thixotropic / 1600 Poise @ 77 °F (25 °C)   | Thixotropic / 1000 – 3000 Poise @ 77 °F (25 °C)   |
| <b>Pot Life (450g Mass)</b>  | 40 min @ 77 °F (25 °C)  | 90 min @ 77 °F (25 °C)   | 95 – 100 min @ 77 °F (25 °C)  |
| <b>Key Features</b>          | <ul style="list-style-type: none"> <li>› Room temperature storage</li> <li>› Room temperature cure</li> <li>› Good gap filler</li> <li>› Develops strength rapidly</li> <li>› Qualified to MMM-A-132</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Room temperature storage</li> <li>› Room temperature cure</li> <li>› Good gap filler</li> <li>› Excellent mechanical properties</li> <li>› Low toxicity</li> <li>› Improved hot / wet properties</li> <li>› Qualified to MMM-A-132</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Room temperature cure</li> <li>› Non-Metallic filler</li> <li>› Excellent mechanical properties</li> <li>› Good compressive strength</li> <li>› Improved hot / wet properties</li> <li>› Qualified by many OEMs</li> </ul> |
| <b>Product</b>               | <b>LOCTITE EA 934NA AERO</b>  | <b>LOCTITE EA 9394 AERO</b>  | <b>LOCTITE EA 9395 AERO</b>   |
| <b>Also Known As</b>         | <b>HYSOL EA 934NA</b>   | <b>HYSOL EA 9394</b>   | <b>HYSOL EA 9395</b>  |

\* Service temperature is defined as the temperature at which the adhesive still retains 1000 psi / 6.9 MPa using test method ASTM D1002.

| Repair Type                  | Laminating and Wet Lay Up  |  |   | High Service Temperature   |  |
|------------------------------|--|--|---|--|--|
| <b>Size Package Options</b>  | <ul style="list-style-type: none"> <li>› Clip Pack</li> <li>› Pudding Cup</li> <li>› Pints</li> <li>› Quarts</li> </ul>  | <ul style="list-style-type: none"> <li>› Clip Pack</li> <li>› Pudding Cup</li> <li>› Quarts</li> <li>› Cartridge Kits</li> </ul>   | <ul style="list-style-type: none"> <li>› Clip Pack</li> <li>› Pudding Cup</li> <li>› Pints</li> <li>› Quarts</li> <li>› Gallons</li> <li>› Cartridge Kits</li> </ul>  | <ul style="list-style-type: none"> <li>› Clip Pack</li> <li>› Quarts</li> <li>› Cartridge Kits</li> </ul>  | <ul style="list-style-type: none"> <li>› Quarts</li> </ul>   |
| <b>Technology</b>            | 2-part Epoxy   | 2-part Epoxy   | 2-part Epoxy  | 2-part Epoxy   | 2-part Epoxy   |
| <b>Color (A / B / Mixed)</b> | Amber / Amber / Amber  | Light Beige / Blue / Light Blue  | Blue / Purple / Green-Purple  | Gray / Purple / Gray-Purple  | Blue / Purple / Violet   |
| <b>Service Temperature*</b>  | 300 °F<br>(149 °C)   | 350 °F<br>(177 °C)   | 350 °F<br>(177 °C)  | 450 °F<br>(232 °C)   | 400 °F<br>(204 °C)   |
| <b>Consistency</b>           | Low Viscosity /<br>162 Poise<br>@ 77 °F (25 °C)  | Low Viscosity /<br>120 – 160 Poise<br>@ 77 °F (25 °C)  | Low Viscosity /<br>35 Poise<br>@ 77 °F (25 °C)  | Moderate<br>Viscosity  | Low Viscosity /<br>< 35 Poise<br>@ 77 °F (25 °C)   |
| <b>Pot Life</b>              | >30 min<br>@ 77 °F (25 °C)   | 2 hrs<br>@ 77 °F (25 °C)   | 75 – 90 min<br>@ 77 °F (25 °C)  | 8 hrs<br>@ 77 °F (25 °C)   | 8 hrs<br>@ 77 °F (25 °C)   |
| <b>Key Features</b>          | <ul style="list-style-type: none"> <li>› Room temperature cure</li> <li>› Excellent elevated temperature strength</li> <li>› Accelerated heat cure capability</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Accelerated heat cure capability</li> <li>› Improved hot / wet properties</li> <li>› Good wetting capability</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Room temperature storage</li> <li>› Room temperature cure</li> <li>› Excellent strength properties from –67 °F to 350 °F (–55 °C to 177 °C)</li> <li>› Qualified to MMM-A-132</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Accelerated heat cure capability</li> <li>› Excellent strength properties above 400 °F (204 °C)</li> <li>› Low toxicity</li> <li>› Long pot life</li> <li>› Qualified to MMM-A-132</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Accelerated heat cure capability</li> <li>› Room temperature storage</li> <li>› Low toxicity</li> <li>› Long pot life</li> <li>› Improved hot / wet properties</li> </ul> |
| <b>Product</b>               | <b>LOCTITE EA 956 AERO</b>   | <b>LOCTITE EA 9390 AERO</b>  | <b>LOCTITE EA 9396 AERO</b>   | <b>LOCTITE EA 9394C-2 AERO</b>   | <b>LOCTITE EA 9396C-2 AERO</b>   |
| <b>Also Known As</b>         | <b>HYSOL EA 956</b>  | <b>HYSOL EA 9390</b>   | <b>HYSOL EA 9396</b>  | <b>HYSOL EA 9394/C-2</b>   | <b>HYSOL EA 9396/C-2</b>   |



### Out-of-Autoclave

### Specialty Repair – Surfacing Film and Lightning Strike

|   |  |  |   |
|---|--|--|---|
| <ul style="list-style-type: none"> <li>› Film Adhesive</li> </ul>   | <ul style="list-style-type: none"> <li>› Film Adhesive</li> </ul>  | <ul style="list-style-type: none"> <li>› Film Adhesive</li> </ul>  | <ul style="list-style-type: none"> <li>› Film Adhesive</li> </ul>   |
| Epoxy Film  | Epoxy Film   | Epoxy Film   | Epoxy Film  |
| Uncured: Red<br>Cured: Gold   | Green  | Blue   | Blue  |
| >300 °F<br>(149 °C)   | > 300 °F<br>(149 °C)   | 350 °F<br>(177 °C)   | 350 °F<br>(177 °C)  |
| Film Adhesive   | Film Adhesive  | Film Adhesive  | Film Adhesive   |
| 90 days<br>@ 77 °F (25 °C)  | >30 days<br>@ 90 °F (32 °C), 50 % RH   | 45 days<br>@ 77 °F (25 °C)   | 45 days<br>@ 77 °F (25 °C)  |
| <ul style="list-style-type: none"> <li>› Accelerated heat cure capability</li> <li>› Excellent environmental resistance</li> <li>› Good co-cure capability with composites</li> <li>› Long out-time makes it ideal for repairs</li> <li>› Qualified to MMM-A-132</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Accelerated heat cure capability</li> <li>› Excellent peel and low temperature (–67°F / –55°C) properties</li> <li>› Good co-cure capability with composites</li> <li>› Qualified by many OEMs</li> </ul> | <ul style="list-style-type: none"> <li>› Accelerated heat cure capability</li> <li>› High quality surface finish</li> <li>› Good paint adhesion</li> <li>› Lower weight repair material</li> <li>› Long out-time makes it ideal for repairs</li> </ul> | <ul style="list-style-type: none"> <li>› Accelerated heat cure capability</li> <li>› Complete lightning strike repair solution</li> <li>› Lower weight repair material</li> <li>› Long out-time makes it ideal for repairs</li> </ul> |
| <b>LOCTITE EA 9695 AERO</b>   | <b>LOCTITE EA 7000 AERO</b>  | <b>LOCTITE EA 9845SF AERO</b>  | <b>LOCTITE EA 9845LSC AERO</b>  |
| <b>HYSOL EA 9695</b>  | <b>HYSOL PL 7000</b>   | <b>HYSOL EA 9845 SF</b>  | <b>HYSOL EA 9845 LSC</b>  |

# Authorized Aerospace Distributor Partners



Henkel maintains an AS 9100 registered Quality Management System and audits its distributor partners to this standard. All authorized distributors maintain an AS 9120 registration, which ensures warranty flow down throughout the value chain. As a result, Henkel's composite repair solutions are readily available from our global network of authorized distributor partners. For a current list of authorized distributors, please visit the following link:

[www.henkel.com/aerospace-distributor](http://www.henkel.com/aerospace-distributor)

## Feature

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- › Audit & control of authorized distributor network

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- › Product shipment according to manufacturer instructions & OEM specifications

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- › Full manufacturer warranty flow down

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- › 2 component lot matched system

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- › Local sales support & inventory of ready-to-use package configurations

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### Benefit

- › Global product availability with aerospace focused technical support
- › Compliant shipment package with lot traceability and shelf life control
- › Complete certification package, paperwork and warranty
- › Full performance characteristics tested to OEM requirements
- › Just-in-time availability & safety stock for AOG needs

**LOCTITE®**  
**BONDERITE®**  
**TECHNOMELT®**  
**TEROSON®**  
**AQUENCE®**

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