

**LOCTITE®**

# **AEROSPACE POTTING SOLUTIONS**



Henkel Adhesive Technologies

# STRENGTHENING THE CORE

Henkel offers a broad variety of potting, edge fill and encapsulating compounds to use with various substrates, operating temperatures and other environmental factors. All provide improved mechanical strength, as well as resistance to vibration, shock and thermal stress.

These syntactic paste or film products are comprised of epoxy foam materials filled with micro-balloons that provide structural performance with reduced density to address aerospace interior and manufacturing needs. Additionally, they protect against corrosion, dust and chemicals while providing electrical insulation. Due to their thermal properties they are ideally suited for a wide range of aerospace temperature requirements.

## Benefits Include:

- Enable lightweighting
- High compressive strength at elevated temperature
- Reduced rework due to minimized microcracking and cell wall separation
- Improved mechanical strength
- Fire retardant options available
- Approved to major OEM specifications
- Non-halogenated options (REACH Compliant)
- Environmental, Health and Safety (EHS) REACH Compliance benefits
- Automatable – upscaled robotic dispensing possible for paste materials
- Machinable/Drillable - materials can be machined and drilled after full cure
- Global product availability and technical support





# Low Density:

Lightweight with good compressive strength

| Product                                 | LOCTITE® 9396.6 MD   |
|---|--|
| Description                             | LOCTITE® 9396.6 MD is an easy mixing, two-part syntactic epoxy adhesive with good compressive strength at higher temperatures. |
| Flammability (FR or FST)                |  |
| Form                                    | Paste  |
| System (1K or 2K)                       | 2K   |
| Color                                   | Lt. Blue   |
| Density, g/cm³ (lbs/ft³)                | 0.55 (34)  |
| Compression (Ultimate) at RT, ksi (MPa) | 6.1 (41.7)   |
| Storage, °F (°C)                        | ≤0°F (-18°C)   |
| Shelf Life (months)                     | 12   |
| Pot Life at 77°F (25°C)                 | 2 hr   |
| Cure Temp., °F (°C)                     | 77°F (25°C)  |



## Intermediate Density:

High compressive strength at temperatures up to 350°F, make these products perfect for potting and panel edge reinforcing.

| Product   | LOCTITE® EA 9814™  | LOCTITE® EA 9820™  | LOCTITE® EA 9825™  |
|---|--|--|--|
| Description                                       | LOCTITE® EA 9814™ AERO is an intermediate density, fire retardant, one-component epoxy syntactic for use on honeycomb composite parts requiring high compressive strength at temperatures up to 350°F (177°C). | LOCTITE® EA 9820™ is an intermediate density, one-component epoxy syntactic for use on honeycomb composite parts requiring high compressive strength at temperatures up to 350°F (177°C). It may also be used for fastener or attachment potting and panel edge reinforcing. | LOCTITE® EA 9825™ is an intermediate density, one-component epoxy syntactic for use on honeycomb composite parts requiring high compressive strength at temperatures up to 350°F (177°C). It may also be used for fastener or attachment potting and panel edge reinforcing. |
| Flammability (FR or FST)                          | FR   |  |  |
| Form  | Paste  | Paste  | Paste  |
| System (1K or 2K)                                 | 1K   | 1K   | 1K   |
| Color   | Off-White  | Amber  | Amber  |
| Density, g/cm <sup>3</sup> (lbs/ft <sup>3</sup> ) | 0.75 (47)  | 0.87 (54)  | 0.72 (45)  |
| Compression (Ultimate) at RT, ksi (MPa)           | 15.4 (105.9) <sup>1</sup>  | 22.7 (156.6) <sup>1</sup>  | 13.2 (91.0) <sup>1</sup>   |
| Storage, °F (°C)                                  | -20°F (-30°C)  | ≤0°F (-18°C)   | ≤0°F (-18°C)   |
| Shelf Life (months)                               | 12   | 12   | 12   |
| Pot Life at 77°F (25°C)                           | >8 hrs.  | >8 hrs.  | >8 hrs.  |
| Cure Temp., °F (°C)                               | 260°F (127°C)<br>350°F (177°C)   | 250°F (121°C)<br>350°F (177°C)   | 250°F (121°C)<br>350°F (177°C)   |

## Variable Density:

These syntactic film products expand using unique closed cell process, making ideal for core fill and stabilization.

| Product   | LOCTITE® EF 9899™  | LOCTITE® EF 9899 CF™   |
|---|--|--|
| Description                                       | LOCTITE® EF 9899™ is an expanding syntactic film. It expands using a unique closed cell process, providing for a completely homogenous cell structure. Its applications include honeycomb core stabilization, edge close out, RTM core, and many others. | LOCTITE® EF 9899 CF™ is a medium density low exotherm expanding syntactic film suitable for core filling applications. Its typical cured density range is 18 – 35 pcf (0.29 – 0.56 g/cc). The low exotherm chemistry makes this product ideal for deep core fill. Additionally, high compressive strength provides the potential for some structural applications. |
| Form  | Film   | Film   |
| System (1K or 2K)                                 | 1K   | 1K   |
| Color   | Yellow   | Green  |
| Density, g/cm <sup>3</sup> (lbs/ft <sup>3</sup> ) | 0.13-0.40 (8-25)   | 0.29-0.56 (18-35)  |
| Compression (Ultimate) at RT, ksi (MPa)           | 0.58 (4.0) <sup>2</sup>  | 6.8 (47.2) <sup>3</sup><br>7.8 (53.5) <sup>4</sup>   |
| Storage, °F (°C)                                  | ≤0°F (-18°C)   | ≤0°F (-18°C)   |
| Shelf Life (months)                               | 12   | 12   |
| Pot Life at 77°F (25°C)                           | 15 days  | 15 days  |
| Cure Temp., °F (°C)                               | 250°F (121°C)<br>350°F (177°C)   | 250°F (121°C)<br>350°F (177°C)   |

## Fire Retardant Potting Materials:

Flame retardant toughened epoxy paste materials with excellent mechanical strength for edge filling and structural potting interior applications.

| Product                                 | LOCTITE® EA 9824 FST*   | LOCTITE® EA 9814   | LOCTITE® EA 9807   |
|---|---|--|--|
| Description                             | LOCTITE® EA 9824 AERO is an intermediate density, FST compliant, one-component epoxy syntactic for potting and edge-fill of honeycomb composite parts requiring good compressive strenght at temperatures up to 350°F (177°C). The material has an excellent working life and is suitable for both manual and automated dispensing. | LOCTITE® EA 9814 AERO is an intermediate density, fire retardant, one-component epoxy syntactic for use on honeycomb composite parts requiring high compressive strength at temperatures up to 350°F (177°C). Additionally it offers environmentally sustainable benefits, as it is halogen, antimony and phenol free. | LOCTITE® EA 9807 AERO is a two-part room temperature curing pourable intermediate density structural epoxy syntactic flame retardant potting compound for use on honeycomb assembly parts and repair applications. |
| Flammability (FR or FST)                | FST   | FR   | FR   |
| Form                                    | Paste   | Paste  | Paste  |
| System (1K or 2K)                       | 1K  | 1K   | 2k   |
| Color                                   | Off-White   | Off-White  | Purple   |
| Density, g/cm³ (lbs/ft³)                | 0.71 (45)   | 0.75   | 0.85 (53)  |
| Compression (Ultimate) at RT, ksi (MPa) | 7.2 (50)  | 15.4 (105.9)1  | 10.7 (73.5)  |
| Storage, °F (°C)                        | 0°F (-18°C)   | -20°F (-30°C)  | <82°F (<28°C)  |
| Shelf Life (months)                     | 12  | 12   | 12   |
| Pot Life at 77°F (25°C)                 | >5 days.  | >8 hrs.  | 90 minutes   |
| Cure Temp., °F (°C)                     | 260°F (127°C)<br>350°F (177°C)  | 260°F (127°C)<br>350°F (177°C)   | 75°F (25°C)<br>250°F (121°C)<br>350°F (177°C)  |





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