



Henkel

A Brand Like a Friend

Press release

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Epsilon Composite Resins – Carbon Fiber Has Met its Match. An Alternative to Epoxy Resins

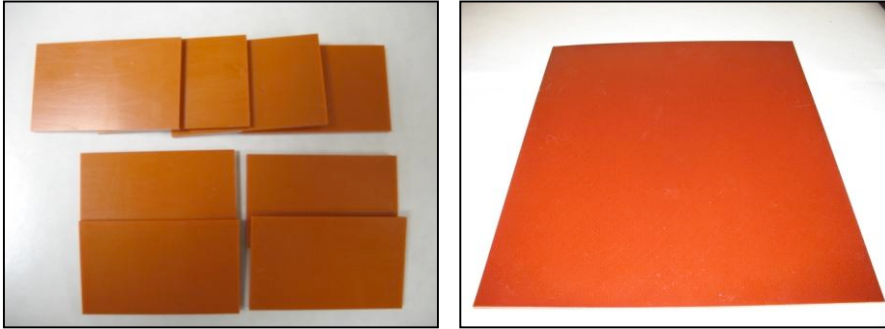
Henkel's New Epsilon Resin Takes Aerospace Technology to New Heights

Bay Point, Calif. – Henkel's aerospace group announces the launch of Epsilon 99100, a benzoxazine RTM/VARTM resin system, optimized for aerospace applications. This innovative technology is an efficient and effective alternative to the epoxy chemistry. Epsilon 99100 significantly enhances mechanical performance and durability, while lowering the costs associated with composite structure during manufacture and service. Epsilon 99100 represents the first of a family of aerospace composite resin systems which will be introduced in 2008.

Epsilon 99100 is a unique resin system in that it is stable at ambient temperatures for over a year as a one-part resin. This reduces the cost of processing, storage and shipment. Additional features include:

- Ⓟ **Broad processing window** – great for large parts and intricate shapes
- Ⓟ **Viscosity stability** – long injection window for large parts
- Ⓟ **Low heat release during cure** – allow for manufacture of large parts, lowers residual stresses
- Ⓟ **Low cure shrinkage** – improved translation of strength in final part
- Ⓟ **Fire retardant** – suitable for aircraft fuselage and interior applications
- Ⓟ **High hot/wet property retention** – higher service temperature to enable a wide range of aircraft applications
- Ⓟ **Improved UV resistance** – no discoloration compared to epoxies
- Ⓟ **Good thermal resistance** – acceptable for high temperature areas

Additionally, this 180°C cure resin system provides an excellent combination of properties including hot/wet glass transition temperature at 165°C, high toughness, high compressive strength and modulus, good solvent resistance and FST properties.



The Epsilon benzoxazine family of resins has a unique orange color. To the left are neat resin castings and to the right is a glass laminate used in FST testing.

“Epsilon 99100’s wide range of applications will revolutionize aircraft composite assemblies as a result of its unique combination of benefits as a structural composite resin”, said Raymond Wong, vice president of technology, Henkel. “This innovation is a result of Henkel’s commitment to developing new and innovative cost-effective technologies for our customers.”

For more information including data sheets, MSDS’s and application information, visit www.henkelepsilonresin.com.

Henkel’s aerospace group provides structural adhesives and metal surface treatments. Key brands include Hysol® for structural adhesives, Turco® for metal surface treatments and key product brands of Frekote® mold release chemicals and Alodine® conversion coatings. For more information on Henkel’s aerospace technologies, visit www.henkelna.com/aerospace.

For more than 130 years, Henkel has been a leader with brands and technologies that make people’s lives easier, better, and more beautiful. Henkel operates in three business areas -- Home Care, Personal Care, and Adhesives Technologies -- and ranks among the Fortune Global 500 companies. In fiscal 2007, Henkel generated sales of \$19.218 billion and operating profit of \$1.975 billion. Our 53,000 employees worldwide are dedicated to fulfilling our corporate claim, "A Brand like a Friend," and ensuring that people in more than 125 countries can trust in brands and technologies from Henkel.

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