



Henkel Benzoxazine 99110

Resin System



- Liquid infusion resin with enhanced mechanical performance and durability with:
 - High temperature performance (hot/wet)
 - Low flammability properties
- Easy processing by Resin Transfer molding (RTM) and Vacuum Assisted Resin transfer Molding (VARTM)
- Ambient shipping and storage
- Approved for air shipment
- Lower cure shrinkage and heat release

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Features and Benefits

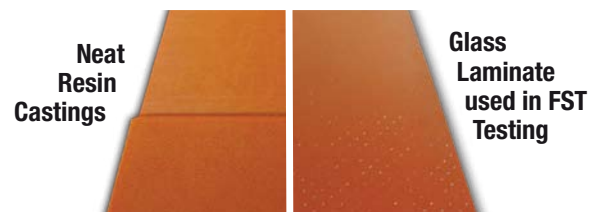
Henkel Benzoxazine Resin 99110 is a unique resin system in that it is stable at ambient temperatures for over six months as a one-part resin. This reduces the cost of processing, storage, and shipment. Additional features with related benefits include:

- High hot/wet property retention – higher service temperatures to enable a wide range of aircraft applications
- Low heat release during cure – allows for manufacture of large parts, lowers residual stresses
- Broad processing window – great for large parts and intricate shapes
- Viscosity stability – long injection window for large parts
- Low cure shrinkage – improved translation of strength in final part
- Fire retardant – suitable for aircraft fuselage and interior applications
- Improved UV resistance – reduced discoloration compared to epoxies
- Good thermal resistance – acceptable for high temperature areas

Henkel Benzoxazine Resin 99110 Processing

	RTM Process	VARTM Process
Injection Temp	90 – 110 °C (195 – 230 °F)	110 °C (230 °F)
Injection Pressure Gradient	2 – 3 bar	1 bar (full vacuum)
Injection Viscosity	< 500 mPa.s	< 100 mPa.s
Cure Temperature/Time	90 minutes @ 180 °C (356 °F)	90 minutes @ 180 °C (356 °F)
Cure Pressure	6 – 7 bar	0.7 bar (vacuum)
Cure Ramp Rate	3 °C/min (5 °F/min) max	< 3 °C/min (5 °F/min) max

The Henkel Benzoxazine Resin 99110 benzoxazine family of resins has a unique orange color after cure.



Product Details

Product Nature	One-part benzoxazine resin
Density	1.22 g/cm ³
Tg	Dry 191 °C, Wet: 161 °C (72h boiling water)
Storage Time	6 months at room temperature, > 1-year at 4°C or below
Application	RTM / VARTM
Time at processing temperature	> 4-hours
Cure	90 min / 180 °C – Heat up to cure 2 °C (4 °F) per minute
Characteristic	Use Henkel Benzoxazine 99900 binder for increased toughness



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