

Ordinary epoxies have a very low toughness and this deficiency has limited the use of epoxies in the area of structural metal bonding (both steel and aluminium) due to the peeling failure at the metal-resin interface. R5 epoxy offers up to a massive 30-fold increase in peel strength, with negligible reduction in the shear and tensile adhesive strengths, by curing with the formation of minute rubbery particles in a second, separate phase, and it should be used in the most critical bonding applications.

R5 has also found use in high performance Kevlar®, graphite and glass composites because of its resistance to the micro-cracking which can otherwise occur when a high tensile fibre applies stress to the resin immediately adjacent to the fibre. Reduction of this micro-cracking results in a greatly improved resistance to fatigue. Impact resistance of FRP structures can also be improved significantly.

R5 offers hard resin castings with vastly improved toughness and ability to withstand thermal shock.

**MIX RATIO**

26 parts hardener to 100 parts resin by weight.  
30 parts hardener to 100 parts resin by volume.

*Note: Care should be taken when dispensing and mixing. Do not attempt to control the cure time by altering the hardener ratio. Contact ATL Composites for specific information.*

**TESTING**

The following data was obtained after curing for five days at 25°C. Shear specimens utilised Alodine etched 2024-T3 aluminium alloy 0.063 inches thick.

<b>TENSILE LAP SHEAR</b>		
Test Temperature (°C)	Strength (psi)	Strength (MPa)
-55	4300	29.6
25	4200	28.9
50	1000	6.9
71	600	4.1
30 days salt spray @25°C	4100	28.3
30 days high humidity	3700	25.5
30 days tap water	4000	27.6

<b>CASTINGS (at room temperature)</b>		
Properties	(psi)	(MPa)
Tensile Strength	8100	56
Tensile Modulus	420,000	2895
Flexural Strength	13,000	90

ELECTRICAL PROPERTIES ~ ASTM TESTS			
Temperature		25°C	100°C
Dielectric constant at	100Hz	405	8.40
	100kHz	4.1	6.47
Dissipation factor at	100Hz	0.01	1.57
	100kHz	0.04	0.05
Volume resistivity (Ω/cm) at	100V	2 x 10 <sup>15</sup>	1.5 x 10 <sup>11</sup>
	500V	1.7 x 10 <sup>14</sup>	1.9 x 10 <sup>10</sup>
Surface resistivity (Ω) at	100V	1.5 x 10 <sup>15</sup>	3.0 x 10 <sup>12</sup>
	500V	2.4 x 10 <sup>14</sup>	7.4 x 10 <sup>11</sup>

**HEALTH & SAFETY**

TECHNIGLUE-HP R5 resin and H5 hardener have moderate sensitising potential, and should be kept out of the eyes and off the skin.

- Use with good ventilation and adequate safety equipment including impervious gloves and safety glasses.
- If skin contact occurs, remove contaminated clothing immediately, and wash the affected area thoroughly with ATL’s 845 hand cleaner and water, avoiding the use of solvents except in the case of massive contamination.

- If eye contact occurs, immediately flush with running water for at least 15 (fifteen) minutes and seek medical advice.

- If swallowed:

**Resins** - DO NOT induce vomiting, and contact a doctor or the Poisons Information Centre.

**Hardeners** - DO NOT induce vomiting, give plenty of milk or water and contact a doctor or the Poisons Information Centre.

NOTE Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, express or implied, including any warranty or merchantability or fitness, nor is protection from law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special or consequential damages. 27/05/04

