



Technical Data Sheet (Solcat S2)

This data sheet presents the mechanical properties of UV cured and room temperature cured Dow Derakane 411-350 VE.

Conditions

- UV curing: resin was catalysed with Solcat S2 and exposed for 10 minutes under a 400W mercury vapour lamp
- Room temperature (RT) cure: resin was formulated with a 1.0% MEKP and 0.2% CoNap, giving a gel time of 30-40 minutes

ASTM tests were conducted 48 hours after cure. The tables below give average values for each property, with standard deviation in parentheses.

Bulk Resin Property	UV Cure	RT Cure	ASTM
Tensile strength (MPa)	67.41 (0.45)	41.07 (0.33)	D638M
Tensile Modulus (GPa)	3.11 (0.08)	2.51 (0.06)	
Flexural strength (MPa)	98.05 (1.74)	60.01 (0.13)	D790
Flexural modulus (GPa)	2.83 (0.14)	2.26 (0.02)	

Interlaminar (short beam) shear tests (ASTM D2344) were conducted on 6-7 mm thick, 20-ply, unidirectional glass-fibre reinforced samples. This testing included a UV cured laminate that was cured in two stages (2 x 10 plies), creating a secondary bond that would be subjected to maximum shear stress at the mid-plane.

Composite	Interlaminar shear strength (MPa)
UV cure	48.61 (1.50)
UV cure secondary bond	52.57 (1.49)
Room temperature cure	24.89 (1.33)

The interlaminar shear strength results clearly demonstrate that thick laminates can be made by secondary bonding multiple layers.