



MK30 and MK230 Performance When Bonding A Flax Matrix PMMA Composite

This Technical Bulletin contains information on the bonding of a recyclable flax matrix PMMA composite that is to be used in the manufacture of pleasure yachts for deck to hull applications. The performance of MASTIKOL adhesives MK 230 HV and MK 30 series product was assessed.

Product Characteristics

MK 230 HV and MK 30 are two component 10:1 volume ratio methacrylate adhesives designed for the bonding of composite structures with minimal surface preparation. When stored and used at 24°C, the products in the MK 230 HV and MK 30 adhesive series, will perform within the following specification.

MK 30 Cure Profile at 24°C

Product	Working Time (min)	Fixture Time (min)
MK 30-05	6 – 10	15 – 25
MK 30-15	15 – 35	55 – 75

MK 30 HV Cure Profile at 24°C

Product	Working Time (min)	Fixture Time (min)
MK 230 HV	70 – 90	180 – 240

Product Cured Properties at 24°C

Property	MK 230 HV Series	MK 30 Series
Tensile Strength	19 – 23MPa	19 – 23MPa
Elongation	>60%	80 – 100%
Tensile Modulus	400 – 550MPa	250 – 300MPa
Cohesive strength	10 – 15MPa	20 – 23MPa
Service Temperatures	-40 to 90°C	-40 to 120°C

All product details can be found at www.mastikol.com

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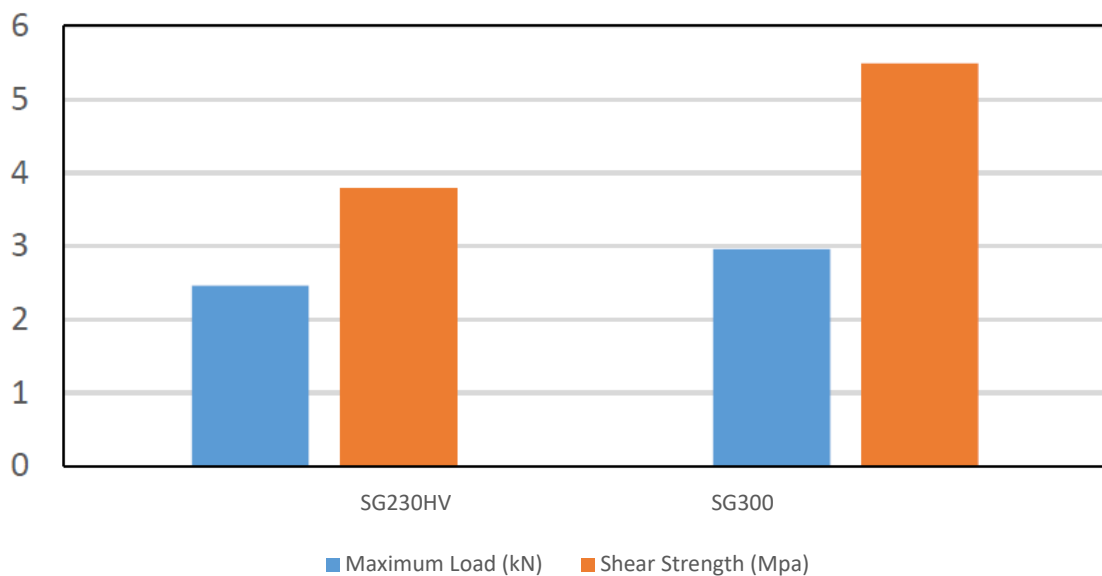
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Shear Strength Performance

Single lap shear samples were prepared following ASTM D5868, bonding a PMMA flat matrix composite using a 25.4mm bond overlap and bonding thicknesses of 3.17mm (MK 230) and 0.75mm (MK 30). All substrate samples were prepared using only a solvent clean. After 24 hours cure time, samples were assessed for shear strength being pulled at a crosshead speed of 12.7mm/min.

Shear Strength Performance

Product	Maximum Load (kN)	Shear Strength (MPa)	Failure Mode
MK230HV	2.46	3.79	Composite Failure
MK30	2.96	5.49	Composite Failure



Both MK230HV and MK30 show excellent adhesion to the flat matrix PMMA composite having sufficient strength to cause complete substrate failure as shown below. Variance in performance, between the two adhesives, is most likely due to the composite sample sizes provided, not allowing for consistency in lap shear coupon size, during sample preparation.

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MK30

MK230HV