



# agy

## Glass Fibers for Demanding Applications

AGY has produced S-3 UHM™ Glass fibers for the Ultimate in High Modulus glass fibers. With a 10% increase in modulus over S-2 Glass® and S-1 HM™ Glass fibers S-3 UHM Glass meets the requirements for applications where modulus is the driving factor but the other properties of glass fibers are required over other alternative fibers.

Physical Properties	Test Method	Units	S-3 UHM™	S-2 Glass®	S-1HM™	E-Glass
Strand Tensile Strength	ASTM D2343	MPa (Kpsi)	3,228 - 3,338 (468 - 484)	3,569 - 3,677 (518 - 533)	3048 - 3135 (442 - 455)	2,070 - 2,235 (300 - 324)
Strand Tensile Modulus	ASTM D2343	GPa (Mpsi)	99 (14.6)	90 (13.1)	90 (13.1)	69 - 76 (10.0 - 11.0)
Bulk Glass Density	ASTM D1505	g/cc (lb/cu.in.)	2.86 (0.103)	2.49 (0.090)	2.55 (0.092)	2.63 (0.095)
Glass Fiber Density	ASTM D792	g/cc (lb/cu.in.)	2.83 (0.102)	2.46 (0.089)	2.52 (0.091)	2.58 (0.093)
Softening Point	ASTM C338	°C (°F)	964 (1767)	1056 (1933)	948 (1738)	846 (1555)
<b>UD fabric Laminate Properties (60% FVF)</b>						
Tensile Strength	ASTM D3039	MPa (Kpsi)	1435 (208)	1710 (248)	1230 (178)	775 (112)
Tensile Modulus	ASTM D3039	GPa (Mpsi)	61 (8.85)	56 (8.12)	53 (7.69)	40 (5.80)
Flexural Strength	ASTM D790	MPa (Kpsi)	1777 (258)	1690 (245)	1428 (207)	1173 (170)
Flexural Modulus	ASTM D790	GPa (Mpsi)	61 (8.85)	55 (7.98)	51 (7.40)	41 (5.95)
Compressive Strength	ASTM D3410	MPa (Kpsi)	1024 (149)	1140 (165)	887 (129)	600 (87)
Compressive Modulus	ASTM D3410	GPa (Mpsi)	63 (9.14)	53 (7.69)	52 (7.54)	42 (6.09)

S-3 UHM™ Glass, the Ultimate in High Modulus Glass Fibers

**strength** in materials

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