



COMPOSITE ENVISIONS

TENSILE STRENGTH COMPARISON Vs NON COMPOSITE MATERIALS				
Material	Tensile Strength (Mpa)	Density (g/cm ³)	Specific Strength (kN m/kg)	Breaking Length (km)*
Concrete	4.5	2.30	5.20	0.44
Rubber	15	0.92	16.30	1.66
Copper	220	8.92	24.70	2.51
Polypropylene (PP)	35	0.90	36.00	3.70
Low Carbon Steel (AISA 1010)	365	7.87	46.40	4.73
Stainless Steel (304)	505	8.00	63.10	6.40
Brass	580	8.55	67.80	6.91
Nylon	78	1.13	69.00	7.04
Titanium	344	4.51	76.00	7.75
Oak	90	0.74	123.00	12.50
Aluminum Alloy (6061-T6)	310	2.70	115.00	11.70
Carbon-Epoxy Composite	1240	1.58	785.00	80.00
Spider Silk	1400	1.31	1069.00	109.00
Glass Fiber	3400	2.60	1307.00	133.00
Basalt Fiber	4840	2.70	1790.00	183.00
Vectran	2900	1.40	2071.00	211.00
Carbon Fiber (AS4)	4300	1.75	2457.00	250.00
Kevlar	3620	1.44	2514.00	256.00
Zylon	5800	1.54	3766.00	384.00
Carbon Fiber (Toray T1100G)	7000	1.79	3911.00	399.00

*The maximum length a vertical column of the material (assuming fixed cross-section) that could suspend its own weight when supported only at the top.

**This information is to be used as a general tool between different material types. This information is offered for comparison only and is not guaranteed to be accurate depending on composition, alloy, type of spider, density of wood, etc.