

FIBRE PROPERTIES COMPARISON

FIBRE PROPERTY	SYNTHETIC FIBRES			PLA	NATURAL FIBRES			
	NYLON 6	PET	Acrylics		RAYON	COTTON	SILK	WOOL
Specific Gravity	1.14	1.39	1.18	1.25	1.52	1.52	1.34	1.31
Tm (°C)	215	255	320 (degrades)	130-175	None	None	None	None
Tenacity (g/d)	5.5	6.0	4.0	4.0	2.5	4.0	4.0	1.6
Moisture regain (%)	4.1	0.2-0.4	1.0 -2.0	0.4-0.6	11	7.5	10	14-18
Elastic Recovery (5% strain)	89	65	50	93	32	52	52	69
Heat of Combustion (MJ/kg)	31	25-30	31	19	17	17	-	21
Flammability	Medium smoke; melts	High smoke burns 6 min after flame removed	Medium	Low smoke; burns 2 min after flame removed	Burns	Burns	Burns	Burns slowly; self-extinguishing
LOI (%)	20-24	20-22	18	26+	17-19	16-17	-	24-25
UV resistance	Poor	Fair	Excellent	Excellent	Poor	Fair-Poor	Fair-Poor	Fair
Refractive Index	1.52	1.54	1.50	1.35-1.45	1.52	1.53	1.54	1.54
Contact Angle (θ)	70	82	-	76	-	-	-	-
Wicking (L-W slope; higher slope, more wicking)	-	0.7-0.8 (no finish)	-	6.3-7.5 (no finish) 19-26 (with Finish)	-	-	-	-