

K-Spec® Fiber Characteristics vs. other Fibers

K-Spec® core yarn strength retention is based on test results of components at 65°C/150°F (or less) for 6 months. K-Spec® has a 100% strength retention when exposed to: Age, 10% detergent solution, rot and mildew, sunlight and Toluene; 99% strength retention when exposed to: acetic acid, gasoline, hydrochloric acid 1m, hydraulic fluid, kerosene, and sea water; 98% retention when exposed to: 25% ammonium hydroxide, 10% hypophosphite solution, and 40% phosphoric acid; 97% retention when exposed to 5m sodium hydroxide; 95% retention when exposed to Portland cement and sulfuric acid; and 88% retention when exposed to Clorox® bleach and nitric acid.

9.0 - Fiber Characteristics

(Using Nylon as a basis of 1.0)

Generic Fiber Type	Nylon	Polyester	Poly-Arylate	UHMwPE	Aramid	K-Spec®
Tenacity – dry g/d	7.5-10.5	7.0-10.0	26-29	35-40	28	35
Weight	1.0	1.21	.80	.85	1.26	1.01
Elongation at Break %	15-28	12-18	3.8	3.5-3.8	4.6	3.8
Moisture regain %	4.0-6.0	1	<0.10	0	2	0
Melting Point	425°F 218°C	490°F 254°C	625°F 330°C	300°F 149°C	900°F 482°C	320°F 160°C
Critical Temperature	180°F	180°F	180°F	150°F	300°F	180°F
Specific Gravity	1.14	1.38	1.41	.97	1.38	1.11
Cold-Flow (Creep)	Negligible	Negligible	Negligible to High	Negligible to High	Negligible	Negligible

•Critical temperature is defined as the point at which degradation is caused by temperature alone.

Cold-Flow (Creep) is defined as fiber deformation (elongation) due to molecular slippage under a constant steady static loading situation. Fibers that have this inherent characteristic will display extremely low or negligible creep if minor fluctuations occur in the rate and/or frequency of load levels. In rope form, this would apply to polypropylene, polyethylene, and HOPE Olefin fibers.