

Physical properties of fibres used by BWF

Fibre type	Wool Felts		Needle Felts				
	Wool	Viskose	Polyester	Polypropylene	aliphatic Polyamide	Homopolymeric Polyacrylonitrile	Copolymeric Polyacrylonitrile
Trade name		Danufil	Trevira* Diolen*	Meraklon*	Nylon*(PA6.6) Perlon*(PA6)	Dolanit* Ricem*	Dolan*
BWF-designation	LEW	2W	PE	PP	PA	DT	AC
Temperature resistance operating °C	94	80	150	90	110	125	110
Temperature resistance peaks °C	110	94	150	100	115	140	115
Density (g/cm ³)	1,32	1,5	1,38	0,9	1,14	1,18	1,14
Tensile strength acc. to DIN 53816 (cN/tex)	10 - 16	16 - 30	25 - 95	25 - 60	30 - 90	35 - 70	20 - 35
Moisture uptake in % (at 20 °C, 65 % rel. F.)	15	12 - 14	0,2 - 0,5	0	3,5 - 4,5	1,0	3,5 - 4,5
Water retention acc. to DIN 53814 in %	40 - 45	85 - 120	3 - 5	0	10 - 15	4 - 6	5 - 12
Melting point °C	-	-	250 - 260	160 - 175	215 - 220	240	-
Decomposition °C	-	175 - 190	-	-	-	320	-
LDI-value	24	19	20	19	20	18	18
Resistance to acids	+	-	0	++	0	+	0
Resistance to alkalis	-	+	-	++	+	0	0
Resistance to hydrolysis	0	0	-	++	-	+	+
Biological resistance to microorganisms	0	-	++	++	+(+)	++	++
Characteristics	natural fibre	high-moisture-absorbance	good value fibre	good chemical resistance	abrasion-resistant and mech. stable	hydrolysis and light resistant, waterproof	dyeable, thermo-plastic

Definition: ++ = very good + = good 0 = moderate - = poor

Needle felts

Phenolic resin	aromat. Polyamide (meta-structure)	aromat. Polyamide (para-structure)	Poly-phenylene-sulphide	Melamine resin	Polyamid-imide	Polyimide	Polytetrafluorethylene	Metal	pre-oxid. PAN
Kynol*	Nomex* Conex*	Kevlar* Twaron*	Ryton* Fortron*	Basofil*	Kermel*	P 84*	Teflon* Profilen*, Toyoflon*	Bekinox*	Sigrafil*
KY	NC	KR	RY	BA	KM	PI	TF	B	SFO
150	180	180 - 200	190	180	180	240	250	350	200
200	220	220 (500)	200	200	180	260	280	400	250
1,27	1,38	1,44	1,37	1,4	1,34	1,41	2,1	7,7	1,4
12	44 - 53	44 - 53	50	20 - 40	35 - 44	38	8 - 18	-	15 - 20
	5,0	3,0 - 4,0	0,6	0	3,4	3,0	0	0	8
	12	7	0	0	3	3	0	0	7
			280 - 290				327	1400	
	370	500					400		
30	26 - 30	29 - 31	39 - 41	30	32	38	95	--	60
+	0	0	++	-	0	+	++	+	0
+	0	0	++	0	-	0	++	+	-
+	0	0	++	0	-	+	++	++	++
+	+	+	+	+	+	+	++	++	++
flame- and heat resistance	good temperature resistance	extremely high tensile strength, low elongation	good chemical and thermal resistance	flame- and heat resistance, good insulator	non combustible	very good mech. and therm. properties	excellent chem. and therm. resist. nonstick	temp. resist., electr. and therm. conductive	good temp. resist., sound absorbance