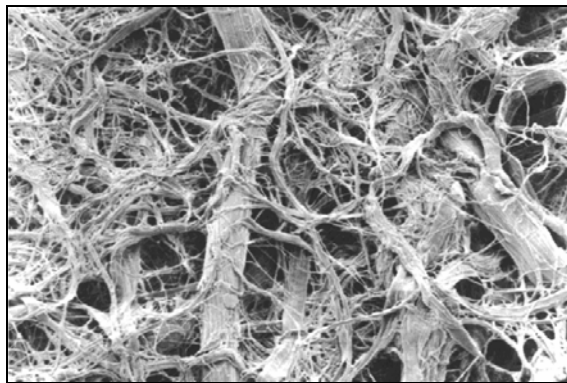


## TENCEL® FOR SPECIALITY PAPERS

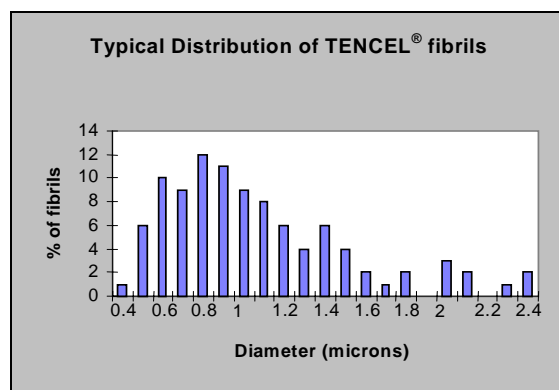
The use of TENCEL® in speciality papers is well established. Refining TENCEL® to generate fine, circular cross-section fibrils enables optimisation of sheet tear strength, opacity and permeability. TENCEL® can be used to produce 100% binder-free papers and it is also ideal for use in blend with woodpulp or microglass fibers.

Fibrillated TENCEL® fibers are used in the production of a wide range of special purpose papers. The fibrillation can be achieved using normal papermaking equipment such as beaters or refiners or by vigorous mixing in a hydrapulper or high shear mixer.

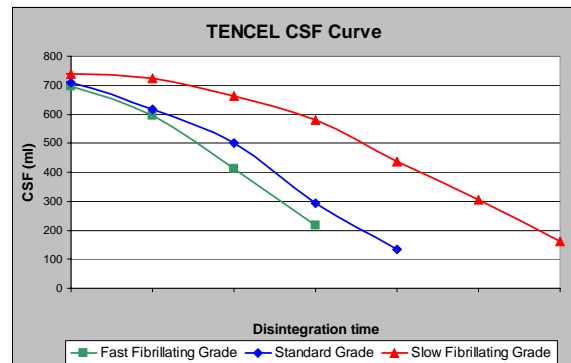
### TENCEL® - Fibrillated



Wet fibrillation of TENCEL® yields a distribution of fibril diameters down to sub-micron levels:



TENCEL® fiber is available in a number of different grades and in cut lengths down to 2mm, to suit different processing conditions. Grade selection can also be utilized to enable the control of fibrillation rate, as indicated by the Canadian Standard Freeness test:



Incorporation of TENCEL® gives enhanced sheet thickness and a smooth paper surface. In combination with glass fiber, TENCEL® imparts improved paper strength and integrity in a binder-free composition.

	Tensile Index (Nm/g)	Tear Index (mN.m <sup>2</sup> /g)	Bulk (cc/g)
Microglass	5.1	5.5	7.7
Woodpulp	14.8	4.7	2.2
TENCEL®	10.7	16.0	4.0

Blending low levels of TENCEL® with pulp gives very similar improvements in tensile and tear strength to those obtained with short cut polyester, together with the additional advantage of maintaining a furnish of 100% biodegradable and flushable cellulose.

Examples of specific applications for TENCEL® papers include electrical insulation papers, battery separator papers, automotive filters (fuel & oil), HEPA and ULPA filters, medical filters, cooking oil, food and beverage filters.

TENCEL® fibers comprise exceptionally low levels of residual metal ions and TENCEL® papers satisfy the requirements for FDA food contact approval (CFR 21 Sections 176.170 and 176.180) as well as German BgVV (36/1) approval for use in food contact applications.