

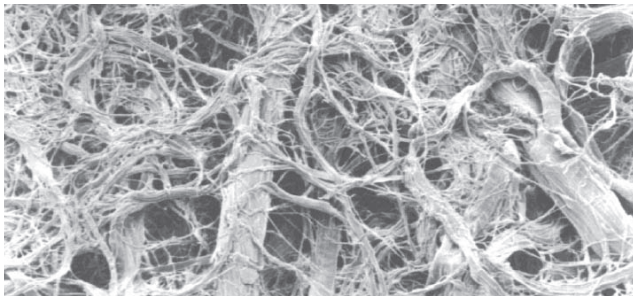


High performance fibers for specialty papers

The use of TENCEL® in specialty papers is well established. TENCEL® is the ideal partner for specialty papers since it fibrillates when refined. The degree of fibrillation can be used to optimize sheet tear strength, opacity and permeability.

Optimized characteristics of TENCEL®

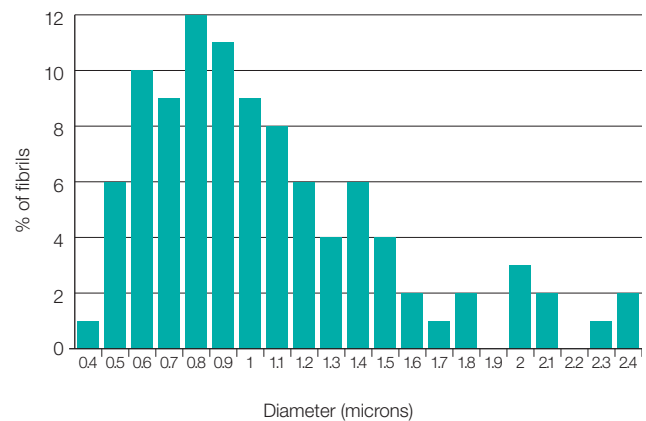
For specialty papers, TENCEL® is refined to generate fine, circular cross-section fibrils.



Fibrillated TENCEL® fibers

The fibrillation can be achieved using normal papermaking equipment such as beaters or refiners or by vigorous mixing in a hydropulper or high shear mixer.

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



Typical distribution of TENCEL® fibrils

Lenzing's tailor made fiber portfolio suits different processing conditions. TENCEL® is available in a number of different grades and in cut lengths down to 2 mm (TENCEL® Short Cut).

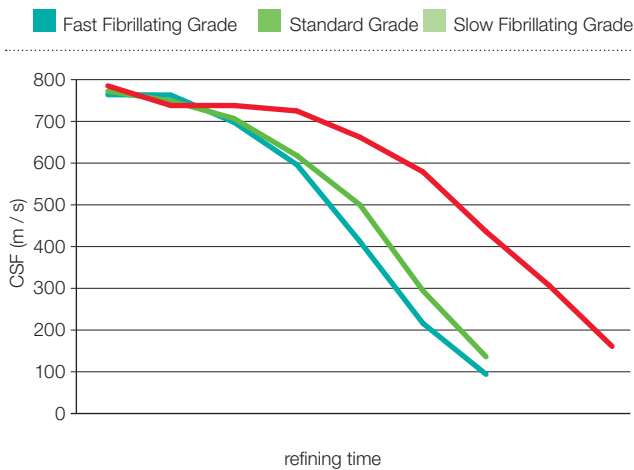




TENCEL® for specialty papers

Grade selection can also be utilized to enable the control of fibrillation rate, as indicated by the Canadian Standard Freeness test:

TENCEL® CSF Curve



Refining curves for 3 grades of TENCEL®

Lenzing helps you to find the best blend for your application

TENCEL® can be used to produce 100% binder-free papers. The incorporation of TENCEL® in blends with other fiber types 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 ² /g)	Bulk (mN.m ² /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. Beyond this, TENCEL®/Pulp papers are 100% biodegradable and flushable.

Main application areas

Fibrillated TENCEL® fibers are used in the production of a wide range of special purpose papers. Examples of applications 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. Beyond this, 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.

