



## POLYESTER AND ITS BLENDS – PART III

REF: TT/ JULY 2020 / WK 3

### Innovations in Polyester fiber

Polyester became popular in apparel because of its versatile properties and cost. However, with passing time, several innovations took place and now from regular clothing polyester fabrics are being used in high-end clothing and beyond clothing as well.

- Hollow Fiber** – As the name suggests, there are hollow spaces between the fibers. These spaces make them light, warm and breathable. Spinnerets are available to make hollow fibers of varying denier (1.5Den to 50Den). Hollow fibers of 1.5 Den are used as fiberfill. This type of fiber is also called two-dimensional crimped hollow fibers. Polyester fibers are twisted or crimped to give extra resiliency and bounce, improving their durability. Three-dimensional crimp combined with hollow fibers has been developed for superior resilience.

With advanced spinning technology, the hollowness of the fibers can be increased. That retains a large number of air layers within the fibers providing cool in the summer and warmth in the winter. These make them suitable for all season sportswear. Hollow fibers are siliconized by coating them with silicones. This allows the fibers to slide over each other making them suitable for filling or stuffing purposes.

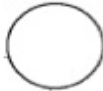



Parameters	Polyester Fiber	Hollow Polyester Fiber
Spinneret hole design		
Fiber Cross section		

Fig 1.1 Polyester fiber vs Hollow Polyester fiber

Ref: sciencedirect.com

- Multi-leaf cross-section fiber** – Flat, multi-leaf cross-section polyester fiber contains tiny bumps across the flat surface. These bumps create small spaces between, providing good water absorption and diffusion via the capillary effect. The surface bumps also deflect and scatter light, providing opacity and UV exposure is reduced. Also, these flat-textured surfaces provides smooth, soft feel on the skin.

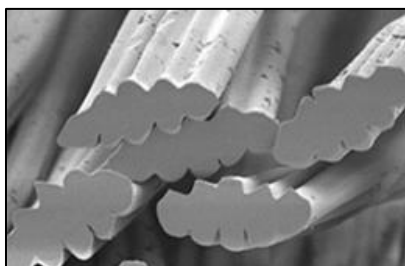


Fig 1.2 Multi-leaf cross section fiber

Ref: toray.com

- **Micro Fiber** – Micro fiber is made of finer fibers finer than one denier, having a diameter of less than ten micrometers. These fibers are tightly woven together, allowing no space between them. The water-absorbing quality of microfiber makes them best suitable for athletic wear. Micro fiber can hold up to seven times its own weight of water which makes it suitable in soaking up. It can also pick up bacteria from dirty surfaces. This property of micro fiber makes it best useful in cleaning products, like cloths and mops.

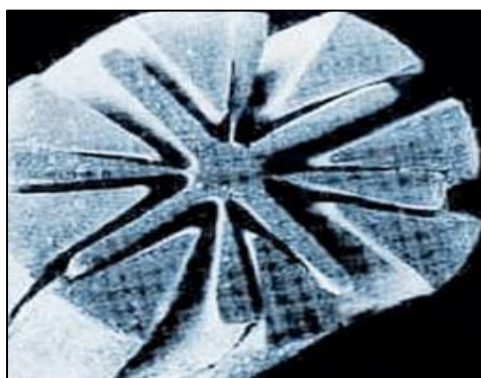


Fig 1.2 Cross section of a Microfiber strand

Ref: ecomost.co.uk

**Key Words**

Spun yarns – Composed of short staple fibers twisted or bonded together.

Filament yarns – Composed of long fibers twisted or bonded together.

Core spun yarn – Created by twisting staple fiber around a filament core yarn.

- **Flame retardant Polyester fibers** - As polyester fibers are easily flammable, development of flame retardant polyester fiber is a significant innovation in this area. It is a special group fibers developed to provide safety combined with design to the apparel. This polyester fiber is produced with modified polyester that contains a flame retardant component which is attached to the molecular structure. This product is used in hospitals, transport and home textiles industries.

.....To be continued.....

UNSCRAMBLE THE JUMBLE WORDS
CROMIREBF
GINNPNIS
ESOPYLERT
MELAFINT

Last week's Answers: 1) FIBERFILL 2.) HYDROPHOBIC 3) SUNLIGHT 4) CRYSTALLINE

Wishing you a great week ahead!

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