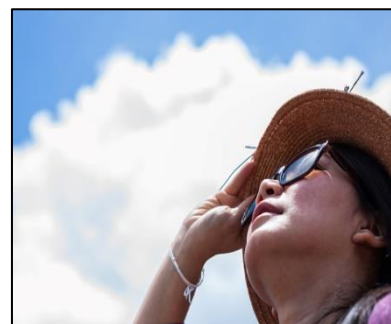




## SUN PROTECTIVE TEXTILES - PART II

REF: TT/ APRIL 2019 / WK 3

As functionality to protect the textiles from UV radiation; generally achieved by the inherent characteristics of the fibre, which can be natural or an engineered quality in a synthetic fibre by particular additives to the polymer.



### UV Protection characteristics of natural fibres

Ultraviolet Protection Factor (UPF) is a rating system to indicate the UV protection provided by fabrics.

UPF is strongly dependent on the chemical structure of the fibres. The nature of the fibres influences the UPFs.

The level of UV resistance of a textile is therefore dependent upon the inherent characteristics of the fibre used in combination with the fabric structure.

Natural fibres like cotton, silk, and wool have lower degree UV Radiation absorption than synthetic fibres. Cotton fabric in a grey state provides a higher UPF because of the natural pigments, pectin, and waxes act as UV absorbers than bleached fibres.

Linen and hemp are not perfect UV protectors. However, the strong absorption of jute acts as a natural absorber. Protein fibres also have mixed effects in allowing UV radiation. Dyed cotton fabrics show higher UPF and undyed, bleached cotton yields very poor UPF values. Wool absorbs strongly in the region of 280 – 400 nm and even beyond 400 nm. Exposure to sunlight damages the quality of silk's colour, strength and resiliency in both dry and wet conditions. Mulberry silk is deteriorated to a greater extent than Muga silk.



## Engineered fabrics for UV Protection

The properties of a fabric structure that influences its UV are: basis weight, density and weave. Generally, a closed weave will provide greater resistance to UV penetration, and a heavier weight provides a greater barrier. Colour can affect the UV resistance of fabrics. Darker colours absorb more radiation than lighter ones; a colour difference in the same type of fabric can provide a significant difference in protection level.

Stretching of fabric reduces its UV resistance. Because as the weave or knit structure enlarges, the fabric interstices become large, producing small exposed areas within the structure through which UV radiation can pass.

UV PROTECTION fabrics contain anti UV additive, an excellent source in blocking UV rays, in the core of filament. These fabrics significantly protect the skin from harmful UV rays and provide effective sun blocking. Also providing comfort and allows enjoying activities under the sun.

Wishing you a great week ahead!

Technical Tuesdays is a knowledge sharing initiative by Resil Chemicals Private Limited  
[arc@resil.com](mailto:arc@resil.com) | [www.resil.com](http://www.resil.com).