



Education

3.0 Cotton: Video Transcript

Cotton is a natural fibre obtained from the seed hair of the cotton plant. Under a microscope the shape of the cotton fibre is ribbon-like with convolutions along its length. These convolutions prevent fibres from slipping past each other, which contributes to the strength of the yarn when it's twisted together during spinning.

There are many social and environmental considerations that need to be taken into account within the cotton farming industry to ensure you make responsible choices when sourcing materials.

Cotton is made up of cellulose, which is a polymer of glucose. Cellulose is the basic building material of all types of vegetation and many different plants are sources of cellulose fibres. Examples of other plant-based fibres you may be familiar with include linen, jute and hemp. As a group, these are called cellulosic fibres.

Fibres can also be obtained from the chemical modification of wood pulp to produce regenerated cellulosic fibres such as viscose, Lyocell (such as Tencel) and acetate. Although these fibres are all made from the same material, cellulose, they have quite different physical properties because of their morphologies and the arrangement of the polymer molecules. As a group these are called regenerated cellulosic fibres.

Before cotton can be used as a textile fibre, the thin waxy cuticle must be removed by scouring, this enables the use of water-soluble dyes. Cotton is a hydrophilic fibre, meaning it readily absorbs water as it contains groups in its chemical structure that can interact with water.

Cellulosic and regenerated cellulosic fibres are chemically similar and can be dyed with the same classes of dyes. They can be dyed using a range of dyes including direct dyes, reactive dyes and vat dyes. Reactive dyes are the most common dye class used to dye cotton as there is an excellent colour gamut available and excellent fastness properties.