

PRE-TREATMENT OF DIFFERENT FIBERS – PART XVI

REF: TT/ MARCH 2021/ WK 2

SCOURING AND BLEACHING OF JUTE FIBERS

To improve the wettability and absorbency of the jute fibers, scouring is carried out. However this process removes some part of lignin along with other impurities which leads to loss of strength of the fiber. Hence to minimize this loss, scouring of jute is carried out using mild alkali at low temperature. Generally Soda ash which is a mild alkali is recommended with non-ionic detergent to remove the impurities from Jute fiber.

After scouring, the next step of pre-treatment of jute fiber is bleaching. The main coloring matter in jute fiber is lignin. Jute can be bleached with Sodium hypochlorite as well as hydrogen peroxide. With peroxide only a small loss of lignin occurs and the composition of its residual lignin remains more or less unchanged. A bath of peroxide containing a stabilizer under alkaline conditions, at recommended temperature is suitable for bleaching of jute. In both cases over 70% of the yarn strength can be maintained in the fully wet condition. The tendency of the bleached material to become yellow on storage is much less with peroxide than with hypochlorite or chlorite.

Key to note

- Pre-treatment of jute fiber is difficult due to its complex chemical structure.
- Needs to take proper care so that damage of the fiber is minimal.
- Jute being bulky and hygroscopic fiber, it requires considerable amount of water for its pre-treatment process.
- It needs more energy for drying.



E) Pre-treatment of Polyester Fibers and its Blends

Polyester fibers are manmade and do not generally possess natural impurities. They only contain acquired impurities like machine oil, grease, dirt etc., during various processes. It also contains added impurities; those are spin finishes, coning oils, processing lubricants and antistatic agents. These are added to improve the physical and mechanical properties during spinning, weaving and knitting. The main aim of scouring these fibers is to remove these acquired and added impurities. It is important to optimize scouring process to minimize the strength loss.

The natural white color of polyester fibers is usually enough for most of its end uses and bleaching is not necessary. However, PET- Cotton blends require bleaching treatments to remove the natural colors of cotton and if the polyester portion is turned yellow at the time of heat-setting operation. Alkaline hydrogen peroxide bleaching is the most preferred system for polyester/cotton blends.

HEAT SETTING OF POLYESTER FIBERS

Heat-setting is a dry pre-treatment process. Heat setting is the process applicable to fabrics made from synthetic fibers in which the fabric is subjected to the action of high temperature for a short time to make it dimensionally stable. This is process for the stabilization of polyester fibers so they do not shrink on heating. An unset polyester filament yam shrinks about 7% when allowed to relax in boiling water. Hence, it is necessary to have some degree of dimensional stability so that the yarns or fabrics retain their shape during subsequent processing, washing, and ironing. The stabilization of dimensions of synthetic fibers by exposure to heat is possible; because these fibers resist shrinkage at high temperature under tension for a short period.

References:

1. <https://onlinelibrary.wiley.com/>
2. <http://www.fibre2fashion.com/>
3. <http://textilepoints.blogspot.com/>

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

UNSCRAMBLE THE JUMBLE WORDS
ULKYB
IONTENS
PLESTA
EATH TINGSET

Last week`s Answers: 1) AMMONIA 2) LIQUID 3) JUTE 4) LIGNOCELLULOSIC

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