

PRE-TREATMENT OF DIFFERENT FIBERS – PART I

REF: TT/ NOVEMBER 2020 / WK 4

Introduction

In simple terms, pre-treatment means a treatment given to textile fibers prior to dyeing and printing. The objective of pre-treatment is removal of added or natural impurities present in fibers. Impurity is the material other than fiber which is present in raw or processed stock. Natural fibers and synthetic fibers contain primary impurities that are contained naturally, and secondary impurities that are added during various processes like spinning, knitting and weaving. All impurities which cause adverse effect during dyeing and printing are removed during pre-treatment. Pre-treatment process makes the fiber more absorbent, removes dirt, dust from the fiber, and improves its whiteness. Thus prepares it for the subsequent processes like dyeing, printing and finishing.

Impurities in key natural fiber

- Cotton fiber contains 94% Cellulose and 6% impurities. Protein, Pectin, oil, fat, wax and mineral matter are the main impurities.

- 39% impurities are present in Wool. Grease, suint and dirt are the main one.

- In Silk fiber, 24% of impurities are present in total, sericin being the main impurity.

Various quantities and various types of impurities are present in textile fibers. However, the level of impurities present in natural fibers is more, therefore, the pretreatment of natural fibers are more essential than synthetics.

Depending on the types of impurities, the pretreatment process varies.

- Steps involved in silk pretreatment are Degumming/Scouring and Bleaching.
- Wool is pretreated by using chain of processes like Scouring, Carbonizing, Fulling/Crabbing, Bleaching etc.
- Cotton and other cellulose based fibers mainly follow the steps like Desizing, Scouring, Bleaching, and Mercerizing.



- Pre-treatment of synthetic fibers is not as severe as natural fibers and involves processes like Washing, bleaching (if required) etc.

A) Pre-treatment of Silk

Silk is a natural protein fiber which is composed of two main proteins Fibroin and Sericin. Fibroin is the structural center of the silk and Sericin is the sticky material, a natural gum, surrounding the fibroin.

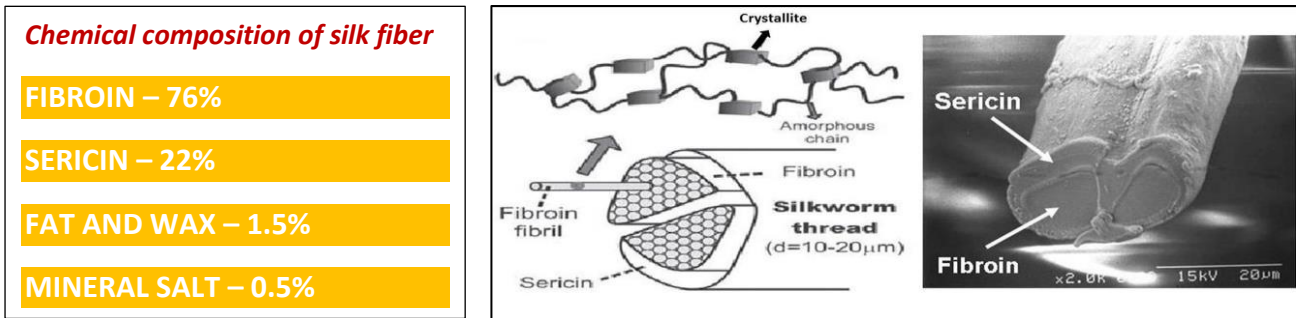


Fig 1.1 Polyester in different areas of textile

Ref: researchgate.net

Along with other impurities, Sericin also should be removed during pretreatment of silk. The removal of this gum or Sericin is known as Degumming or Silk Scouring, which is the main process in pretreatment of silk.

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

UNSCRAMBLE THE JUMBLE WORDS
TIESIMPPURI
LIKS
MENTTREATPRE
MINGGUMDE

Last week's Answers: 1) ABSORBENCY 2) HUMID 3) HAZARDS 4) ATMOSPHERE

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