

PRE-TREATMENT OF DIFFERENT FIBERS – PART III

REF: TT/ DECEMBER 2020/ WK 2

Bleaching of Silk

Silk contains natural coloring matter. After degumming i.e. after the removal of Sericin, silk remains dull white to creamish white. During bleaching these natural coloring matters are decolorized to produce white silk and this also contributes into level dyeing properties. The bleaching of silk is based on the use of either reducing agents or oxidizing agents. Some of the important oxidizing and reducing agents used for bleaching are:

1) Common Oxidizing agents -

- Hydrogen peroxide
- Potassium permanganate
- Sodium perborate
- Sodium peroxide

2) Common Reducing agents -

- Hydros (Sodium Hydrosulphite)
- Sulphur dioxide
- Sodium/Zinc Sulphoxylate Formaldehyde

The chlorine-based agents such as bleaching powder are not generally used, as they tend to chlorinate the silk fibroin. Hydrogen peroxide is most commonly used bleaching agent.

B) Pre-treatment of Wool

Wool is an animal protein fiber which contains a special type of protein called Keratin. Other than that the raw wool contains impurities in the form of grease/waxes, suint, dirt, vegetable matters etc. Some impurities are added during manufacturing processes like spinning, weaving, etc. Wool grease or wax is produced by the sebaceous glands in the skin of sheep and suint is produced by the sweat glands.

It is important to remove these impurities from the wool fiber through pretreatment before the process of dyeing and finishing. So that to have level dyeing, improved whiteness especially in case of pure whites and subsequently have better quality of wool.



Content name	Content %
Keratin	33%
Dirt	26%
Suint	28%
Fat	12%
Mineral matter	1%

Fig 1.1 Chemical Composition of wool fiber

Ref: textileadvisor.com

Main pretreatment processes involved are:

- 1) Scouring
- 2) Carbonizing
- 3) Bleaching

Beside above, there are some dry processes involved in the pretreatment of wool like, Fulling, Crabbing; which plays an important role in achieving better quality.

- 1) **Scouring** – In Scouring of Wool, the process is to remove impurities such as grease, dirt and suint. Wool waxes are recovered from the grease during scouring. These waxes are comprised of a variety of monocarboxylic, dicarboxylic and hydrocarboxylic acids as well as steroidal alcohols. Raw wool contains unoxidized fraction of wool grease and other contaminants those are easily removed. Suint consists of variable composition of water-soluble materials that is readily removed by scouring. The dirt that is removed from the scoured wool consists of both inorganic and organic materials. The proteinaceous material has recently been discovered to consist of skin flakes from the sheep and soluble peptides.

References:

1. textileapex.blogspot.com
2. fibre2fashion.com
3. textileanalysis.blogspot.com

SUINT

- Dried perspiration of sheep deposited on the wool.
- Natural grease consisting of mixture of fatty matter and potassium salts.

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

UNSCRAMBLE THE JUMBLE WORDS
CHINGBLEA
LOOW
RATINKE
INTSU

1. Last week`s Answers: 1) MILD 2) PROTEINS 3) PROTEASE 4) ENZYME

Wishing you a great week ahead!

Technical Tuesdays is a knowledge sharing initiative by Resil Chemicals Private Limited
arc@resil.com | www.resil.com.