

## PRE-TREATMENT OF DIFFERENT FIBERS – PART XVII

REF: TT/ MARCH 2021/ WK 3

### F) Pre-treatment of special fibers

#### HEMP FIBERS

Hemp is a bast fiber like linen/Flax fiber. The primary bast fiber is attached to core fiber with the help of the pectin. Primary bast fibers are high in cellulose and low in lignin.

<i>Chemical composition of Hemp fiber</i>
<b>CELLULOSE – 77.77%</b>
<b>HEMI CELLULOSE – 10%</b>
<b>LIGNIN – 6.8%</b>
<b>PECTINS, FATS, WAX, MINERAL COMPOUNDS ETC – 4-5%</b>

Ref: textileadvisor.com

The chemical composition of Hemp fiber is similar to that of Linen. Hence the pre-treatment process followed for this is also similar to that of linen. The pre-treatment method comprises of carrying out caustic soda treatment, enzyme treatment (pectinase, ligninase etc) on the hemp fabric, bleaching by hydrogen peroxide and deoxidizing the hemp fabric by catalase.

#### GOOD TO NOTE

Though similar in composition but there are few differences between Hemp Fibers and Linen Fibers. Few of them are:

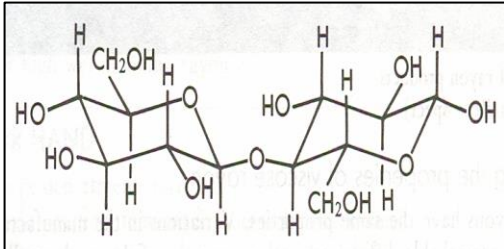
- Hemp fibers are stronger than that of linen.
- Hemp is highly resistant to ultraviolet light, so it does not fade or disintegrate in sunlight.
- Hemp stretches less than any other natural fiber.
- Hemp requires very little maintenance compared to linen.



- Hemp fibers are naturally resistant to pests, hence can be grown without the use of herbicides and pesticides. Flax or linen requires herbicides while cultivating.

### **VISCOSE**

Viscose is a semi-synthetic fiber, manufactured from wood pulp. The chemical structure of viscose is same as that of cotton. Main chemical component being cellulose, but the length of polymer chain of viscose is much shorter than cotton.



**Fig 1.1 Viscose polymer chain**

Ref: slideshare.net

Viscose fibers are regenerated fibers i.e. they are produced again by chemically dissolving the natural materials. Hence, unlike cotton, these fibers are free from natural fats and waxes, seeds etc. Therefore, they need milder scouring process than cotton. However, the viscose fabrics should always be scoured before dyeing because it is important to remove any residual sulphur to prevent dye reduction. Scouring can be based on soda ash or tetra sodium pyrophosphate recipes rather than caustic soda. The liquor ratio may need to be a little higher than for cotton, because of the higher water retention and high swelling properties of viscose. Spinning lubricants used on viscose tend to yellow the fiber with heat. Hence, bleaching of viscose is required to be done especially for full white and pastel shades.

### **References:**

1. <http://extranet.nearchimica.it/>
2. <http://www.fibre2fashion.com/>
3. <https://www.sciencedirect.com/>

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

UNSCRAMBLE THE JUMBLE WORDS
ASTB
TRAVIOLETUL
DERMIL
VENTPRE

Last week's Answers: 1) BULKY 2) TENSION 3) STAPLE 4) HEAT SETTING

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