



SUSTAINABLE TEXTILES – PART II

REF: TT/ MAY 2022/ WK 2

Efficient utilization of natural resources (water and energy) in textile production

Efficient utilization of natural resources like water and energy is essential for sustainable production of textiles. Large amount of water and energy are consumed in the production and care of textiles.

Most of the wet textile processing, such as scouring, washing, dyeing, bleaching, sizing, and finishing, consume large volumes of water and discharge large volumes of effluent which are generally with intense color and high concentration of chemicals. In textile wet processing, water is used mainly for three purposes - as a solvent for dyes and chemicals, as a medium for transferring dyes and chemicals to fabric, and as a washing and rinsing medium. Apart from these processes, boiler, cooling water, steam drying, and cleaning of machines also consume a considerable amount of water. The amount of water used varies widely depending upon the type of textile fiber processed, the type of product (woven, knit, etc.), and the different processes and machineries. Significant reductions in the use of water can be achieved by preventing unnecessary water consumption in the processing mills. There are several new developments aimed at conserving water and energy in the textile processing industries.

Different methods adapted in textile processing industry for water conservation are

- ***Water conservation through textile wastewater treatment and reuse***
- ***Through innovations in textile processing machines*** - Different types of processing machineries are invented which works on low material to liquor ratio (MLR). These low material to liquor ratio dyeing machines also save energy, conserve chemicals as well as achieve higher fixation efficiency. Finishing machines has also been invented to save natural resources. In addition to finishing, the machine separates water from the contaminants introduced by the process with subsequent recycling, whereby the contaminants are concentrated to the point where no liquid waste is generated.
- ***Innovations in textile processing methods*** – Various processing methods are designed to save water and energy. Optimizing wash processes can conserve significant amounts of water.
- ***Reusing wash water***- Reusing wash water for cleaning purposes can save lot of water. Water from many processes can be reused by a variety of methods. Examples are dye bath reuse, bleach bath reuse, final rinse reuse as a loading bath for the next lot.



- **Developments in textile auxiliaries** – Enzyme based scouring and bleaching agents save water and energy besides reducing the effluent load in wastewater.
- **Through tools for processing water use analysis and conservation** - Implementation of in-plant control techniques helps in reductions in water and energy consumption.

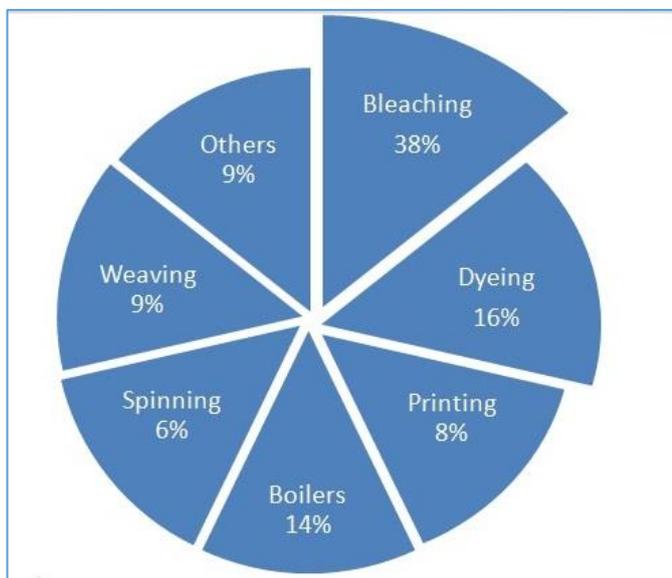


Fig 1.1 Water consumption in cotton processing

Ref: commons.wikimedia.org

References:

1. <https://www.2bfuntex.eu/>
2. <https://www.study.com/>
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5. <https://www.intechopen.com/>

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

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Last week`s Answers: 1) ECONOMIC 2) TREATMENTS 3) ELIMINATE 4) CRUELTY

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