

## TECHNICAL TUESDAYS

### TOPIC: **Bleach Clean up in Textile Wet processing**

REF: TT/ Dec 2014/ WK 5

#### What is Bleaching on Textiles?

Bleaching is an important and essential step in pretreatment of Textiles. It helps 'whiten' the textile material by removing undesired inherent colouring components.

#### Need of Bleaching:

Bleaching is the process of decolourisation of raw textile material by removing inherent and acquired coloring components from the fiber. It provides base whiteness to the textile material which could be further whitened with the help of optical brighteners depending on the desired end use.

Bleaching can be carried out at various stages of conversion of fiber to garment i.e. from fiber, yarn, woven, knit, towel, garments, etc.

#### Bleaching agents used in Textile Bleaching:

Basically, two types of chemical processes are employed - oxidative and reductive bleaching. These agents are employed depending on the substrate to be bleached on and the nature of inherent colouring impurities.

#### Bleach clean-up after Bleaching Process on Textiles

When the textile material is to be dyed after bleaching, it becomes imperative that the left over residual bleaching agent is effectively removed, as it affects the colouring component/ chromophore of the dyestuff.

Failing to do so can result in poor dyeability, batch-to-batch shade reproducibility as well as uneven dyeing. Therefore, in order to get rid of the remaining leftover bleaching agent, an intermittent bleach clean-up process is incorporated. This process can also be termed as peroxide killing or neutralization in case of hydrogen peroxide and antichlorine in case of chlorine based bleaching. It is necessary in processes involving use of material in package or rope form, while in continuous process, owing to the open width form and continuous counter current water washing, generally bleach clean-up is not required.



In case of full bleach or full white process, high concentration of bleaching agent is used, it is considered to be advantageous to neutralise and clean-up to avoid subsequent yellowing during extended storage conditions.

The Direct and Reactive dyestuffs are generally sensitive to oxidizing agents and even small amount of post bleaching residual hydrogen peroxide may have a negative influence on subsequent dyeing resulting in loss of depth.

The Vat and Sulphur dyes are relatively stable and unaffected by the residual bleaching chemical. However, it is still considered advisable to clean-up the strong oxidizing agent before start of dyeing in order to avoid neutralisation of dye solubilising chemicals which could cause inadequate reduction/precipitation of this class of dyestuffs.

Methods of Bleach Cleanup Followed in Textile Wet processing:

Various methods of bleach clean-up are employed in the textile industry. These involve - repetitive washing, catalytic decomposition, reductive neutralisation and enzymatic killing.

Wishing you a great week ahead!

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