

## POLYESTER AND ITS BLENDS – PART X

REF: TT/ SEPTEMBER 2020 / WK 2

### Dyeing of Blended Fabrics

The most common blend of polyester i.e. Polyester/Cotton blended fabrics are generally dyed by two-bath or one-bath two-step dyeing method. In the dyeing of Poly/Cotton blend, selection of dyes plays an important role. It is necessary to choose a dye which does not or minimally cross stains the other component. This helps in achieving desired color fastness properties.

**1) Two - bath dyeing** – In this dyeing process, the polyester part is dyed first by High Temperature High Pressure method and then the cotton part is dyed. This is a batch process.

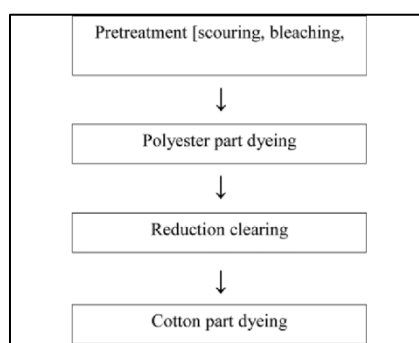


Fig 1.1 Process Flow Chart – Two bath dyeing

Ref: researchgate.net

**2) One - bath two - step dyeing** – Two bath dyeing methods are relatively long and complicated. The one-bath two-step dyeing procedure is shorter as compared to two-bath method, but the drawbacks are lower dyeability and poor reproducibility. In one-bath two- step dyeing process, both the dyes such as Disperse/reactive dyes are used in the same dye bath.

- **Disperse/Reactive dyeing** –In this method, the bath is prepared with dispersing agent, wetting agent and acetic acid. After treatment for 10-15min at 50-60°C, disperse and reactive dyes are added. The temperature is raised to 130°C and polyester part is dyed. After PET part dyeing, the temperature is cooled to 80°C, soda ash and salt are added and the process is carried out to dye the cotton part. Thereafter, the washing-off process is followed. Care needs to be taken that those reactive dyes are used which are stable up to 130°C.



- In another method, the bath is prepared with, dispersing agent, lubricant and acetic acid (pH 4-5). After reaching the temperature 60°C, disperse dyes are added. Raise the temperature to 130°C and polyester part is dyed. After polyester dyeing, cool down the temperature to 80°C, reactive dyes, common salt and soda ash are added, and the cotton part dyeing is carried out. There after the washing process is followed.

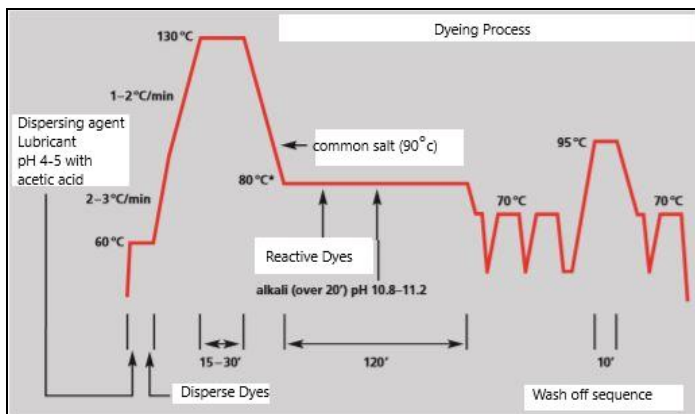


Fig 1.2 Process Flow Chart – One-bath dyeing (Disperse/reactive system)

### ***Dyeing of Polyester in Supercritical Carbon Oxide***

- Hydrophobic disperse dyes get dissolved in hydrophobic Supercritical Carbon oxide. Thus, helps in the penetration of the dye into the fabric.

- This method saves time, energy and chemicals.

- Eco-friendly

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

| UNSCRAMBLE THE JUMBLE WORDS |
|-----------------------------|
| NEO ATBH                    |
| ACTREIVE                    |
| COE IENDLYRF                |
| CRICALTIPERSU               |

Last week's Answers: 1) BLEND 2) SHAPE RETENTION 3) VISCOSE 4) BAMBOO

**Wishing you a great week ahead!**

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