

TECHNICAL TUESDAYS

TOPIC: Mercerization Process

REF: TT/ Jul 2016/ WK 1

Mercerization :

Mercerization is a finishing treatment of cotton with strong caustic alkaline solution to improve the luster, hardness and other properties. It was named after its discoverer, John Mercer.

Effect of Mercerization:

1. Improves luster.
2. Increases ability to absorb dyes.
3. Improves reaction with a variety of chemicals.
4. Improves stability of form.
5. Improves strength/elongation.
6. Improves smoothness.
7. The cotton fiber swell and shrink.
8. The cross-sectional shape changes.

Factors of Mercerizing:

Mercerizing depends on the following factors:

1. Twaddle
2. Temperature
3. Tension
4. Time

Twaddle (Concentration of NaOH):

General Practiced Concentration is 48-52°C Tw, in which improvement in luster will be noticed.

Temperature:

High degree of luster is attained at temperatures between 18-20°C. As the temperature is increased the quality of luster is adversely affected but on lowering the temperature no improvement in the luster is obtained.

Tension:

For acquiring better luster the material must be stretched to its original dimensions (both in warp and weft direction during mercerization). If the material is allowed to shrink during mercerizing the quality of luster will be impaired, on the other hand, if the material is excessively stretched, no improvement in luster is achieved.

**Time:**

The optimum time for mercerizing is 30-60 seconds; on increasing the duration of time, no improvement in the quality of mercerization can be achieved, but if the treatment time reduces below 30 seconds, the quality of mercerization will vary.

Determination of Quality of Mercerization:**By Barium Activity Number:**

The Ratio of the quantity of barium hydroxide absorbed by mercerized cotton to that absorbed by unmercerised cotton multiplied by 100 is the barium activity number.

If the barium activity number of unmercerised cotton is fixed as 100 then mercerized cotton gives BAN value of 110 to 165 depending on the degree of mercerizing.

Wishing you a great week ahead!

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