

Technical Tuesdays

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Water Quality Requirements of a textile process house - An Overview

Water - Base of Textile wet procesing:

Water is an essential raw material in the industry particularly in the dyeing and processing of textiles. Before selecting a source of raw water for dyeing purpose a careful survey of the available water source is well worthwhile.

A good supply of pure water is very important to a bleacher or dyer because a number of faults could be attributed to the use of unsuitable water in the processing of textiles.

With the decreasing availability of a good quality water and ecological concerns , the dyers and bleachers are forced to switch to low water consumption technology as well as to reduce the discharge of polluted water.

Some of the Disadvantages of Hard or Unsuitable water usage in textile processing

- Formation of hard soaps with calcium and magnesium ions , which results into shade change.
- Carbonates of calcium and magnesium precipitate iron and aluminum mordant and substantive cotton dyestuffs.
- Some dyes got duller and even scum formation happens in the hard water.
- The metal ion impurities such as iron and copper , is a problem in the peroxide bleaching baths, reducing the degree of whiteness
- iron is responsible for reducing the brightness of many dyes and is also objectionable in the washing off operations.
- Hard water is not advisable especially for Silicone finishes as these salts disturb the stability of emulsion resulting in silicone breakage.
- Addition of sequesting agents in the finish bath with the silicone softeners reduces considerable hardness but increases the TDS and provides high degree of ionicity, which also affects the silicone stability resulting in spots.
- Hard water is responsible for scale formation in the boilers.
- If temporary hardness is high , the soft scales are formed which causes corrosion.

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Recommended Water Quality for a processing house -

The following lists the minimum standards which a textile dye house water supply should meet. To achieve these levels it may be necessary to pre-treat the water before it is used for wet processing or dyeing.

1. Color: Water must be colorless.
2. Odor/ Smell: Water must be odorless.
3. PH (Puissance of Hydrogen): Natural. Value would be 7 to 8.
4. Water Hardness: Less than 5° DH.
5. Dissolved Solids : <1 ML/L.
6. Solid Deposits: < 50 Mg/l.
7. Organic Substance: < 20 Mg/ L.
8. Inorganic Salt: < 500mg/L.
9. Iron : <0.1 Mg/l.
10. Copper: < 0.005 Mg/L.
11. Nitrate: < 50 Mg/ L.
12. Nitrite: <5 Mg/L.
13. Suspended Solids : <1 Mg/L.
14. Chlorides : <300 Mg/L.
15. Turbidity : Nil
16. Total Suspended Solids : <5 Mg/L.

Further Water Should be made free from Carbonic acid as it would cause permanent long term corrosion

It is advisable to have TSS (Total suspended solids) Nil in case of yarn package dyeing process as the package serves as a filter for the dust wherein one can find visible marks/stains in the layers of the cone after dyeing which is difficult to remove.

We end here with a saying good and soft water makes your processing easy and trouble free.

“Have a happy week ahead”

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