TECHNICAL TUESDAYS

TOPIC: Problems Facing in Textile Wet Processing due to Water Hardness

REF: REF: TT/ Nov 2014/ WK 3

What is water hardness?

Hard water is water that has high mineral content (in contrast with "soft water"). Hard water is formed when water percolates through deposits of calcium and magnesium-containing minerals such as limestone, chalk and dolomite.

Types of water Hardness:

Temporary hardness:

Temporary hardness is a type of water hardness caused by the presence of dissolved bicarbonate minerals (calcium bicarbonate and magnesium bicarbonate).

Permanent hardness:

Permanent hardness is a hardness (mineral content) that cannot be removed by boiling. When this is the case, it is usually caused by the presence of calcium sulfate and/or magnesium sulfates in the water.

Level of Hardness:

Soft water: Less than 17 PPM

Slight hard water: 17 to 60 PPM

Moderate Hard water: 60 to 120 PPM

Hard water: 120 to 180 PPM

Very hard water: Above 180 PPM.

Problems in Textile Wet processing due to water hardness:

In Desizing: Deactivate enzymes & increase the insoluble property of size material such as starch & PVA

In Scouring: Combining with soap produces yellowing ,deposition sticky soaps reduces cleaning efficiency & reduce water absorption.

In bleaching: Decompose bleach bath.

In Mercerising:Form insoluble metal oxides, reduces absorbency & lusture.

In Dyeing: Combined with dyes changing the shades, insolubilizes dyes causes tippy dyeing, reduces dye diffusion.

In Printing: Break emulsion, Change thickener efficiency & viscosity.

In Finishing: Interfier with catalyst, causes resin & other additives to become non-reactive, Break the emulsion

Wishing you a great week ahead!

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