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POLYESTER PROCESSING- REMEDIES FOR COLOURATION

(Contd.)

Dye bath pH

90 per cent of disperse dyes are azo dyes, which decrease in the presence of alkaline pH; thus reducing the shade depth. Hence, acidic pH is very important to maintain in dye bath.

Time

Prolonged boiling or high temperature increases the particle size of the disperse dye through agglomeration of dye crystals. High agglomeration causes irreversible precipitation of the dye. Hence, to minimise the aggregation tendency, proper selection and control of dispersing agent and additives is essential.

Machine

Package or beam dyeing machines are strictly discouraged for polyester dyeing. A variety of jet dyeing machines - including the soft flow type and low liquor ratio type over flow units - are more or less suitable for dyeing polyester.

The chances of uneven dyeing can be removed by using high rate liquor circulation. Polyester fabrics are structured with a large number of small interstices which make it extremely difficult to wash out any unfixed dye and chemicals completely. Therefore the dyeing machine used should also have an efficient washing system.

The latest machines handle a wide range of fabrics including PET micro fibre fabrics. This machine helps maintain the quality associated with level dyeing of PET. In this machine, a new air jet attachment has been introduced to provide a solution to reduce the variation in dyeing. This newer jet dyeing machine with air jet attachment is especially good for dyeing the pure synthetic polyester fabrics at a low liquor ratio of 1:3

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Technical Tuesdays



Skitteriness: Skitteriness occurs due to the differential dye uptake by the fibres in the fabric. Often one cannot dye two components in a fibre blended fabric in exactly the same shade if one of the fibres is highly lustrous while the other is devoid of luster. Remedies include:

- In piece dyeing, ensure that polyester of different deniers is not mixed together at any stage. The skittery could be due to mixing of polyester fibres of different deniers between 1.2-1.5 deniers.
- Use polyester fibre with low oligomer content. Oligomer deposition on the surface of the fabric leaves behind whitish impurities, which remain on the fabric even after severe reduction clearing and dyeing with vat dyes on jigger. This happens mainly while beam dyeing of polyester. Another solution is to drop the bath at high temperature into a pond of cool water. Oligomers are soluble at such high temperature. Jet dyeing should be preferred to beam dyeing machine.

Streakiness

Usually in the warp direction, instances of weft streakiness can also be found. Fabric related warp streaks show a sharp boundary running along the warp, wherein single or multiple warp threads are present. Warp threads processing run parallel to the warp, but involve different warp threads along the fabric length. They generally do not involve a single warp thread. It is not always easy to identify the root cause of streakiness and all the causes mentioned above should be taken care of to avoid streakiness

Antipilling

The textile finisher's role has become increasingly demanding. It requires careful balance between the compatibility of different finishing products and the treatment. Certain rubber-based latex compounds, non-ionic polyurethane resins, and self-cross linking binders can all be used as effective antipilling agents.

- The enzymatic process biopolishing improves fabric quality. Cellulose enzymes processing cellulose-based fabrics gives superior handle, luster and novel finishes on cellulose. Hence, they can be effectively used as antipilling agents.

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