



Combine Techniques Used for Cross Dyeing of Fabrics

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Description

Only dyes that have affinity for vegetable, animal, or man-made fibers can be used on them. Acid dyes, which are primarily used to dye wool, silk, and nylon, and direct or substantive dyes, which have a strong affinity for cellulose fibers, are examples of textile dyes. To give mordant dyes an affinity for the material being dyed, chemical substances such as salts are added. They are used after cellulose fibers, wool, or silk have been treated with metal salts. Sulfur dyes, which are used to color cellulose, are cheap but produce dull colors. Azoic dyes are insoluble pigments formed within the fiber by padding it with a soluble coupling compound first, followed by a diazotized base. Vat dyes, which are insoluble in water, are converted into colorless compounds by alkaline sodium hydrosulfite. These colorless compounds are absorbed by cellulose and oxidized to form an insoluble pigment. Colorfast dyes are available. Disperse dyes are suspensions of finely divided organic pigments that are used to color hydrophobic fibers such as polyesters, nylon, and cellulose acetates.

Process of cross-dyeing

This technique combines stock dyeing or yarn dyeing with subsequent piece dyeing. The effects of cross-dyeing were varied. For example, the warp or filling yarns may be stock dyed or yarn dyed, while the other set of yarns remains undyed. After weaving, the fabric is piece dyed: Color is added to the undyed yarn in a second dye bath, and the yarns that were originally stock dyed or yarn dyed gain some additional color, which blends with the piece dyed portion of the fabric.

When vegetable fiber yarns are combined with animal fiber yarns in a piece of dyed fabric, two separate dye baths must be used. The fabric is dipped in both solutions; each solution affects the fiber for which it has an affinity. This creates a vibrant effect. A mordant can be added to a single dye bath to make the dye adhere to fibers for which it has no affinity. As a result, the more expensive method of cross-dyeing, which requires two dye baths, can be avoided or used. Another method of cross-dyeing is dyeing fabric made up of two different types of fibers in one dye bath with two different dyes, one for each fiber.

Cross-dyeing is a less expensive and faster way to achieve the same results as other dyeing methods. A plaid can be made by weaving yarns of different fibers in both the warp and fill directions and then dyeing the fabric in a single bath with a combination of two dyes. Vertical stripes are formed when yarns of one type of fiber and yarns of another type of fiber are used in the warp direction. The final product is determined by the fiber arrangement in the fabric. It could be a check, plaid, tweed, stripe, muted color, heather effect, or another design. Piece-dyed fabrics are one color, but cross-dyeing can result in multicolored fabric. Cross-dyeing is frequently used to achieve a heather effect (soft, misty color). Depending on the fibers used in the fabric, strongly patterned fabrics can also be produced.

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