Sulphur Dyes

About Sulfur Dyes There are many types of dyes and they vary widely in chemical composition. Sulfur dyes are classified as dyes that can be applied to fiber, yarn or fabric. The other types of dyes used are:

- vat dyes,
- azoic or ice dyes,
- direct dyes,
- developed or diazo dyes,
- basic dyes,
- acid dyes,
- chrome dyes, and
- dispersed dyes. Sulfur dyes are insoluble in water and must be chemically treated to reduce them to a soluble form. When applied to a fabric, sulfur dyes oxidize when exposed to air and heat which convert the dye to an insoluble form. Sulfur dyes are used to dye cellulose fibers, including cotton, linen, and rayon. Sulfur dyes are comparatively low in cost and are largely used for production of goods in dull and darker shades. The range of shades which can be produced with sulfur dyes is limited to dull shades of yellow, brown, tan, khaki, green, maroon, blue, gray, navy and black. Any type of wearing apparel for men, women and children can be sulfur dyed. Household fabrics can also be sulfur dyed.

Dye Problems

The problems with sulfur dyes occur in (a) the laundering of shirts. Many cotton striped or solid colored shirts discolor and the yarn deteriorates after laundering. The condition usually occurs on only one color or striped yarn. The problem is due to improper application, neutralization and rinsing of the chemicals used to apply the dyes. An acid and chemical deterioration of the fabric occurs after a period of time. The problem also is prevalent with (b) the use and popularity of linen and linen blend fabrics. Many dark color linen fabrics, mostly black, develop holes and deteriorate after a period of time.

Inspection

Customer: The customer is unaware that the linen garment they are wearing has possibly deteriorated due to poor sulfur dyeing in manufacture. The weakened fabric may hold up for several wearings and drycleanings. Counter: It is almost impossible for even the most careful inspection to detect a fabric weakened due to sulfur dyeing in manufacture. The customer should be made aware that this is strictly a manufacturing defect over which the wearer and drycleaner have no control. Discussion of the problem with the customer is the best approach to avoid claims against the cleaner. Checking for fraying and dye crocking is standard procedure on any dark colored garment. This should be pointed out to the customer. Poor color fastness and dye crocking are also problems with dark colored linens.

Drycleaning

Classify deep and dark colored linen in a silk load classification instead of a hard dark load.

Laundering

sulfur dyes are used in many launderable shirts. Striped shirts present the most prevalent problems. Safer results can be obtained if shirts are washed without use of chlorine bleach (sodium hypochlorite). Even mild oxidizing bleaches (safety bleach) which are widely used for striped shirts, have a bleaching action that can accelerate the chemical deterioration from the improper application of a sulfur dye in the manufacturing process.

Spotting

Approach black and deep colors as possible problems. To prevent dye crocking and possible fabric weakening, observe the following precautions:

(1) Hold steam gun a safe distance from fabric (5-6”).
(2) Use a gentle tamping action only. Brushing a fabric accelerates more dye crocking than tamping.

Wetcleaning

Dark linen: Use gentle soaking action in water and neutral detergent at 100°F.

Finishing

Routine.

Summary

When a sulfur dyed fabric is insufficiently rinsed or not properly neutralized in manufacture, the fabric that the dye is applied to is unserviceable. There is no practical way of detecting the condition in advance and, therefore, no way to prevent the occurrence. Properly treated sulfur dyed fabrics are serviceable and represent the overwhelming amount of garments being produced today. The drycleaner may see some indication of the degradation of the fabric during inspection but that possibility is at best very small. Mechanical action may reduce the speed of degradation but in time the fabric will deteriorate because of the inherent damage done during the application of the dye in manufacture. When this type of damage occurs the garment should be returned to the place of purchase for an adjustment. Reliable retailers are aware of the problem and should be prepared to accept responsibility for the problem.