

Dye Class & Pigment Descriptions for Spandex[®]

Orcolan Neutral dyes are 2:1 premetallized dyes and because of their large molecular size behave similarly to the acid milling type dyes in application and strike rate. Because of the metal complex (Cr+3 usually), these dyes exhibit excellent light and wet fastness and find application in the automotive /industrial fabrics. Because of the rapid rate of exhaustion, these dyes should be applied from a neutral or slightly alkaline pH. The use of an acid salt such as ammonium sulfate with or without a buffer is highly recommended. The pH is gradually lowered later in the dyeing cycle by the use of glacial acetic acid. These dyes offer the best fastness on Spandex[®] as opposed to the other acid-type dyes, except for mordant(Orcochrome[™]) dyes. One limitation of this line is the general lack of brightness but for the majority of shades encountered the line is sufficient. Although not actually included in this line, the **Orcolan Fast[™]** Acid dyes which are a 1:1 metallized type should be mentioned only because they also contain Cr+3 and exhibit excellent fastness. The acid metallized dyes differ from their neutral counter-parts in that they require strongly acidic conditions(pH of 2) to exhaust which may cause some fiber damage to both nylon and wool. One advantage this type of dye does have is its ability to level very well.

Orcochrome[™] dyes are mordant acid-type dyes which offer exceptional washfastness when treated with sodium bichromate. For Spandex[®], which is typically difficult to dye, or in actuality, *stain*, these dyes offer the best dyeing for deep shades with good fastness. The only drawback is the amount of free chrome which will be left in the dyebath from the sodium bichromate treatment. The local municipalities should be contacted for legal limits of chrome in a facility's effluent before implementing the procedure.

OrcoSperse[™] Pigments, being somewhat inert as opposed to the previous dye classes which rely on either some form of ionic bonding or solution/gaseous penetration into the substrate, need an external binding medium to provide fastness to washing and rubbing (crocking). These binding agents usually are in the form of either an acrylic or styrene type water-based emulsion system which when properly cured, offer fair to good wash fastness with minimal crocking in light to medium depths of shade. The main advantages of pigments lay in their ease of application over a wide range of substrate blends and their good to excellent lightfastness(except for fluorescent pigments). Dark shades do usually present a crock problem and the use of higher amounts of resinous binders to overcome this are not particularly effective and create potential problems of harsh handle. Since the binder system used dictates the cure/time temperatures necessary, careful attention to the technical data for the binder should be exercised.