Dye, Pigment and Sublimation ink

Dye ink (dissolves in water)

Dyes are water soluble (dissolves in water) and are know for easily obtaining saturated, brilliant colors due to its small molecule size, 1.5-4 nanometers (1 nanometer=1/1000 of a micrometer, 1 micrometer=1/1000 of a millimeter). This small particle size refracts or scatters very little light providing a large color gamut as well as allowing the dye to "seep" into most media. This "seeping" enables dye based inks to be used on media without the inkjet receptor top coat (a coating applied to media by the manufacturer before reaching the customer) necessary for pigmented ink adhesion.

Unfortunately, the same characteristic that provides for these advantages is also the source of its poor lightfastness and instability in many gas enviornments. A ph neutral media is recommended for use with dye based inks because of their tendency to oxidize in an unbalance ph environment, directly affecting dye giclee ink's longevity. Dyes also have poor water and humidity fastness due to their water soluble nature. When printing on canvas with dye inks use of a top coat, like Bulldog Ultra, is recommended for water proofing.

Pigment ink (Can not dissolves in water)

The defining characteristic that differentiates dye and pigment based giclee inks is the complexity and size of their ink particles. The dye "particle" is made up of one molecule while the pigment particle is made up of numerous molecules bonded together by extremely stable chemical bonds, creating a significantly larger particle measured to be .05-.20 micrometers. When comparing surface area and volume of a partice, the pigment's relatively small surface accounts for its resistance to photofading agents and chemical attack. Translated into english this means pigment inks have a better lightfastness and are less sensitive to humidity and environmental gases. Because pigments are water insoluble they are carefully displaced throughout the carrier most commonly by micro encapsulation, which encases each particle in resin. Dye based inks are water soluble and can become mobile in a high humidity environment, while pigment inks are water insoluble and immune to the adverse effects humidity can cause to dye based prints.

Again the same attribute that makes pigmented inks so stable is also the characteristic that inhibits it in certain areas. Its larger particle size causes more light to be scattered resulting in a smaller gamut making some colors look muted or dull. This is most noticeable when trying to achieve rich reds. However this can be overcome with careful output, media and profile combinations. Pigment inks are also more susceptible to metamerism, which means the shifting of color under different lighting. As pigments inks continue to evolve this issue is becoming less and less noticeable. Due to the large particle size of pigmented inks they cannot simply "seep" into medias and require something to "attach" to, a inkjet receptor top coat, which, to the end user translates to higher media cost. When printing on canvas with pigment inks, use of a top coat, like Bulldog Ultra, is recommended for water proofing.

Sublimation ink

Sublimation ink is for cups,T-shirts

Textile Application Designed for printing onto polyester substrates, these versatile inks will sublime onto polyester rich apparel fabrics, for example sports wear; carpet fabrics; sails and flagging material. Fabrics retain their natural handle making this process ideal for garment sampling and also promotional banners. These printed fabrics are hardwearing and washable. Further information on Textile Ink products is available.

Hardware Application Subliming Ink is a perfect solution for heat transferring images onto pre-coated ceramics, metals and plastic. The list of applications is endless: mugs, decorative tiles, fridge magnets, mouse mats, trophies and even surf boards!!! Due to the wide variety of substrates available, working with these inks opens the door to short or long run, quick response promotional gifts and product sampling. The process of transferring the image is quick and clean with excellent transfer from paper to the substrate.

Subliming inks produce brilliant colour and good light fastness when applied to polyester and polyester coated substrates. Applying heat to the printed image with a press, whether through transfer paper or directly, fixes these vivid inks into the polyester substrate allowing the item to be washed time and time again.