

Organic Color Shift Pigments

Description

Platelet-shaped, optically variable effect pigment based on a purely organic polymer network with liquid crystalline structure.

- Effective in solvent, water or powder coatings
- Compatible with all resin chemistries
- Appearance can be precisely adjusted over a broad range by combination with complementary pigments and additives
- Cost effective “new look” versus traditional micas and metallics and emerging optically variable pigments
- Color transition can be easily adjusted from subtle to dramatic
- Suitable for use on a wide range of substrates (metal, plastic, textiles, leather, etc...)
- Consistent orientation in cured film assures excellent batch to batch color control



Application Suggestions

- Requires clear coat for high gloss or exterior applications
- Must be used with UV stabilizers effective through the UVA range (320-400nm) and above when intended for exterior applications
- Thermal stability to 300 °C
- Five products that cover the entire color spectrum
- Available in a range of particle sizes depending on desired appearance
- Can be molded/extruded in plastics applications while maintaining color properties and appearance
- When used in powder coatings, can be effectively added to the pre-mix (does not require either post-blending or bonding) maintains integrity through the extruder
- Particle structure creates color transition due to changes in reflection based on viewing angle

Product Properties

Aqueous Based Inks:

SANDS' Color Shift pigments are generally compatible with aqueous based ink systems.

Solvent based Inks:

SANDS' Color Shift pigments are generally compatible with solvent based ink systems, with a few considerations. Inks that are based on highly volatile molecules such as acetone, ethyl acetate, or highly solvating molecules such as Xylene, Toluene, THF and NMP can swell the polymeric structure of the SANDS' Color Shift pigment, causing a slight shift in the desired color. This shift in color will be reversed back to the original color once the pigment is printed and completely dried. This color shift can also develop if the ink is based on lower volatility molecules if the ink is kept on the shelf for an extended period (more than 3 months); and while drying of the pigment may allow the pigment to assume its desired color and shift effect, this is not a guarantee. This is why shelf stability should be evaluated for your particular solvent system if you will be storing the ink for any extended period.

UV Curable Inks:

UV curable acrylate based inks can be problematic for the SANDS' Color Shift pigments. The acrylate monomers will tend to irreversibly attack the acrylate polymer system in the SANDS' Color Shift pigments, rendering the pigments unusable. What is most important here is to understand the base chemistry of the UV base. If acrylate based chemistry is required for the UV base, it is critically important to use the ink as quickly as possible after formulation is complete.

Printing Recommendations

SANDS' Color Shift pigments are best suited to silk screen processing due to their particle size, shape and thickness. The thickness (4-5 microns) of the SANDS' Color Shift pigments is generally compatible with the similar film thickness generated by a traditional offset process. The larger cross-section SANDS' Color Shift pigments can be milled finer; however, the visual appearance is impacted by this process.

The finer grades (smaller cross-section) of the SANDS' Color Shift pigments may be somewhat more compatible with the gravure process if the cells on the plate/blanket cylinder are modified to accept a larger particle size material. Also, modifications in cell geometry can go a long way in supporting the use of SANDS' Color Shift pigments in this particular printing method (e.g. hexagonal). Experience in the use of pearlescent pigments can be a great help in defining process modifications that may be required for using the SANDS' Color Shift pigments in the various printing processes.

Storage and Handling

Inks formulated using SANDS' Color Shift pigments are suspensions; meaning the particles are held in suspension by weak interactions between the pigment and the ink base. As such, they have a tendency to fall out of the suspension with time. The relative stability of these suspensions depends upon the interaction of the pigment and its physical characteristics (particle size and specific gravity) and the general nature of the ink base (e.g. specific gravity, viscosity and chemistry). Should you find that your ink has separated into two phases (SANDS' Color Shift pigment and ink base), low energy shaking or stirring should be sufficient to re-suspend the SANDS' Color Shift pigment, with no detrimental effect on the efficacy of the pigment.

It is recommended that you formulate a small amount of the SANDS' Color Shift pigment with your preferred ink base to determine the relative short term stability of the suspension as well as any potential impact of the solvent system on the efficacy of the pigment itself. In this way, you can determine the compatibility of your ink system with the SANDS' Color Shift pigment as well as any special process considerations (e.g. continuous or intermittent stirring).

It is always recommended to run a trial evaluation, with the SANDS' Color Shift pigments, to determine their suitability with your process and that desired visual outcome can be achieved.

All applications using this product should be thoroughly tested prior to approval for production.

The information herein is believed to be reliable and is to assist customers in determining whether our products are suitable for their applications. However, no warranty, express or implied, is made as to its accuracy or completeness and none is made as to fitness of this material for any purpose. Our products are intended for sale to industrial and commercial customers. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute any other warranty, express or implied, including any warranty of merchantability or fitness, nor of protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is replacement of our materials and in no event shall we be liable for special, incidental, or consequential damages. We shall not be liable for damages to person or property resulting from its use. Consult the Material Safety Data Sheet for additional information.