



Photochromic Powder Technical Data

Description

Photochromic powders are photochromic microcapsules in a powder pigment form. They are specifically designed for use in non aqueous based ink systems although their use is not limited to this. They can be used to formulate non aqueous based Flexographic, UV, Screen, Offset, Epoxy, and Gravure ink formulations (for aqueous applications we would recommend using a photochromic slurry). Photochromic powders are colorless in their inactivated state and become colored when exposed to an ultraviolet light source. They will respond to natural sun light as well as artificial sources of 365nm "black light".

Standard Colors	PMS Approximation**
Blue	2995U
Orange	1495U
Purple	254U
Red	1797U
Yellow	116U

** Depends on ink thickness **

Special Care and Storage / Handling Instructions

Photochromic powders are more sensitive to the influences of solvents, pH, and shear than many other types of pigment. It should be noted that there are differences in performance of the various colors so that each should be thoroughly tested before commercial application.

Photochromic powders have excellent stability when stored away from heat and light. Store below 25°C. Do not allow to freeze as this will damage the photochromic capsules. Long term exposure to UV light will degrade the photochromic capsules ability to change color. A shelf life of 12 months is guaranteed provided that the material is stored in a cool and dark environment. Storage longer than 12 months is not recommended. Consult product MSDS prior to use.

TECHNICAL DETAILS

Solids	98% +/-2%
Particle Size	97% < 7 microns
Shelf Life	12 months

Sensitivity

Photochromic microcapsules are sensitive to adverse environmental conditions. These are listed below, along with a description of the nature of the sensitivity, and recommendations with regards to them.

MIXING:

Photochromic powders can withstand most standard mixing procedures. Some shear is necessary as the microcapsules agglomerate slightly when in powder form. To disperse the powder we recommend the use of a three-roll mill. If too much shear energy is used (e.g. bead mills) then the microcapsules can be crushed and the photochromic function destroyed.

LIGHT FASTNESS: Photochromic powders will degrade from UV exposure over Time. Exact life expectancies depend on the intensity and duration of the UV exposure. Some colors will degrade faster than others. Do not use UV inhibitors over the photochromic powders as it will interfere with the color change properties.

HEAT: Some colors may degrade quicker over time when held at elevated temperatures.

CHEMICALS:

Photochromic powders can be incorporated into many types of aqueous inks. However, photochromic materials are sensitive to chemical exposure. Care must be taken to avoid the use of polar solvents such as alcohols, acetates, etc. as these can damage the microcapsule walls.

ALL APPLICATIONS USING COLOR-CHANGING PIGMENTS AND INK OF ANY KIND SHOULD BE THOROUGHLY TESTED PRIOR TO APPROVAL FOR PRODUCTION

Information in this Product Data Sheet is compiled from our general experience and data obtained from various technical publications. While we believe that the information provided herein is accurate at the date hereof, no responsibility for its completeness or accuracy can be assumed. Tests are carried out under controlled laboratory conditions. Information is given in good faith, but without commitment as conditions vary in every case. The information is provided solely for consideration, investigation and verification by the user. We do not except any liability for any loss, damage or injury resulting from its use (except as required by law). Please refer to the Material Safety Data Sheet before using products to ensure safe handling.