

PHOTOCHROMIC PIGMENTS

1. Introduction:

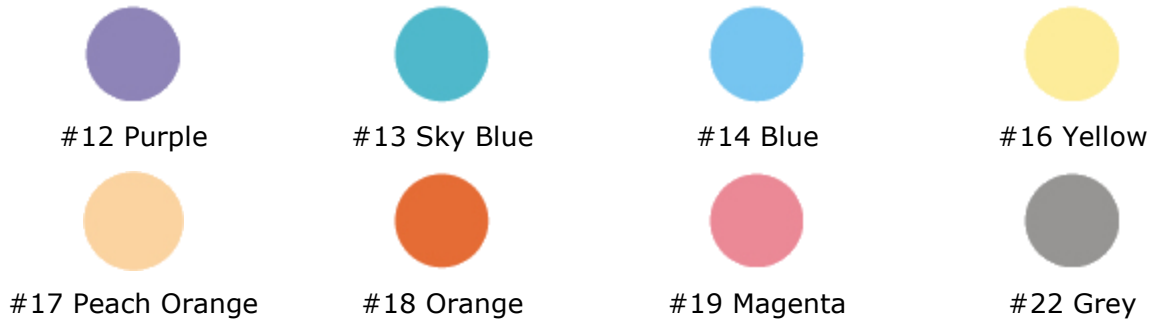
The photochromic pigments change color when exposed to sunlight/UV, and revert to their original color when the sunlight/UV is dimmed or blocked. After absorbing the energy of sunlight/UV, their molecular structure is changed, which causes their absorbed wavelength to be changed allowing a color to appear. It reverts to the original molecular structure and color when the light stimuli is dimmed or blocked.

2. Product Description:

A. Color conversion from colorless to colored when excited by UV light:



Available Colors: #12 Purple, #13 Sky Blue, #14 Blue, #16 Yellow, #17 Orange, #19 Magenta, #22 Gray



3. Available Products & Applicability:

Applicability	Microencapsulated Powder
Ink/Paint (Solvent)	☺
Ink/Paint (Aqueous)	◇
Plastic Injection/Extrusion	☺

☺ Can be used ◇ Conditional

Photochromic Microencapsulated Powder

A. Product Description

* Photochromic microencapsulated powder contains 2-5 % of photochromic dye and less than 3% of moisture, suitable for solvent/aqueous based ink/paint and plastic injection/extrusion. The average particle size is 3-10 mm.

B. Properties

* Photochromic microencapsulated powder is a pigment, which is heat and solvent resistant. The powder shows brilliant color when exposed to sun-light/UV. Suitable for plastic injection and solvent based ink/paint.

C. Recommended Concentrations:

* For solvent/aqueous based ink/paint: 3% to 30% w/w
(For best results, about 25% concentration is required for 20 mm film thickness)

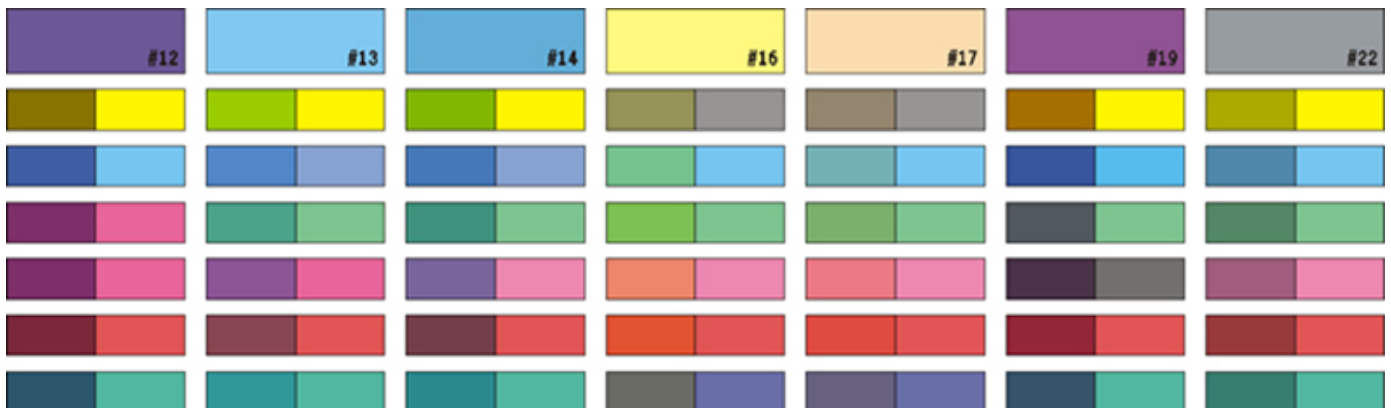
* For plastic injection/extrusion: 0.2% to 1% w/w
(For best results, about 0.5% concentration is required for 0.2 cm plastic thickness)

D. General Recommendations:

* Add a heat stabilizer and process at temperatures not higher than 230°C (445 °F) when applied to plastic injection/extrusion.

Miscellaneous:

From colored to colored:



- All the UMC photochromic products, except the photochromic dyes, are in a pig-mentary form, which can provide various levels of coverage effects.
- The light fastness of the photochromic products should be thoroughly tested pri-or to approval for production.
- Light fastness can be improved by adding more photochromic materials.

Storage: Keep sealed in a dark, cool place, away from direct sunlight. Best within two years if stored correctly.

Certifications: EN-71 & RoHS passed. Safe for food grade packaging and toys.

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