

Monastral® and "Ramapo" Copper Phthalocyanine Blue Pigments (PB-15)

Phthalocyanine blues can exist in two major crystal forms, the alpha phase and the beta phase (the more stable of the two). We market both:

- BLUE R - Stable and unstable red shade (alpha phase).
 - BLUE B - Stable intermediate shade (alpha phase).
 - BLUE G - Stable green shade (beta phase).
- The unstable alpha phase is subject to crystal growth particularly in aromatic solvents. Stabilization of the alpha phase can be accomplished in two ways - surface treatment (Blue R) and partial chlorination (Blue B). Both stabilization methods shift the hue to the green side.

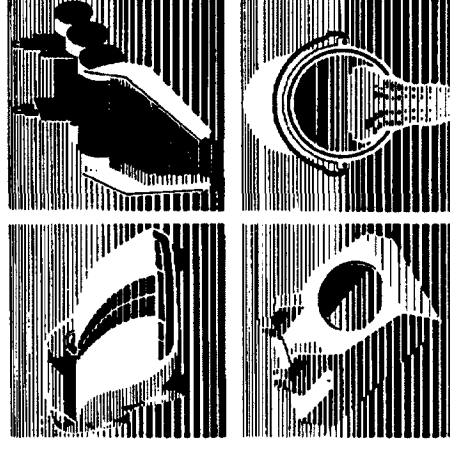
Phthalocyanine blues are ideal pigments, being distinguished by excellent lightfastness, bleed and chemical resistance, extreme stability to heat and exceptionally high tinting strength. Their excellent properties have led to uses in a wide variety of applications, including surface coatings, rubber, textile fibers, plastics, cement, linoleum, tile and ink, etc. Specific product finishing treatments are required to insure optimum performance in widely differing end uses, thus leading to a proliferation of pigments codes.

To accommodate specific applications, phthalocyanine blues are also manufactured in several different physical forms, again adding to the list of codes:

- **TONERS** - Full strength (unextended or undiluted) pigments having maximum tinting strength.
- **RESINATED TONERS** (marketed as "Ramapo", grades) - Pigments to which resins or acrylic polymers have been added to improve dispersibility and texture.
- **LAKES** - Pigments extended with aluminum benzoate to improve dispersion and flocculation resistance.
- **PRESSCAKES** - The "cakes" of water wet pigments as they come from the filter press, for easier dispersion in aqueous systems. We market two presscake types:
 - Conventional products with low solids content (pastes, ~25-45% solids).
 - Dewatered, high solids content (pourable lumps, ~46-50% solids).
- **AQUEOUS DISPERSIONS** - fluid dispersions of pigments in water, or glycol and water prepared from presscakes by the addition of suitable surfactants and mold inhibitors.

The enclosed "Product Trees" list our complete CPC blue line and indicate specific relationships between codes. Recommended end use areas are generalized and should not limit product considerations.

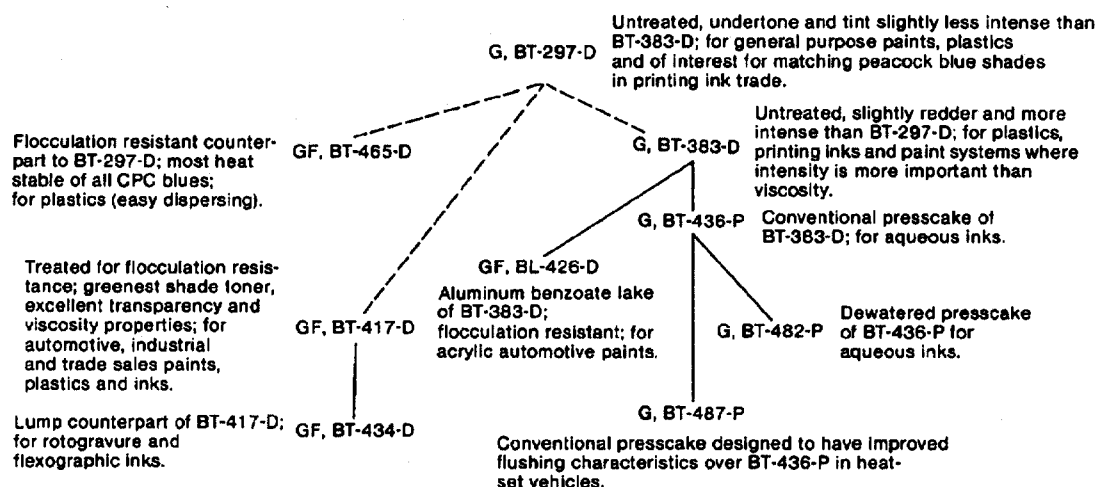
Copper Phthalocyanine Blue Pigments



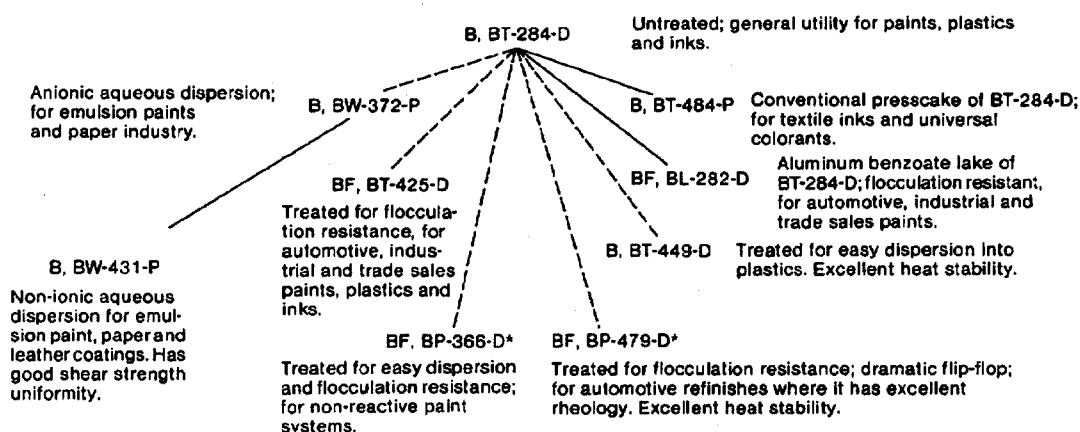
Monastral® and "Ramapo"



CPC BLUE PRODUCT TREE: MONASTRAL® BLUE G

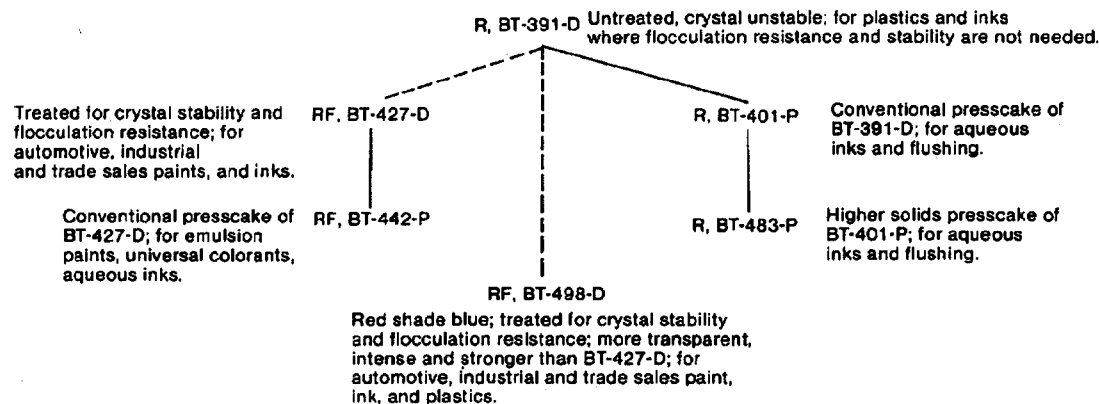


CPC BLUE PRODUCT TREE: MONASTRAL® AND "RAMAPO" BLUE B



*"Ramapo" grades.

CPC BLUE PRODUCT TREE: MONASTRAL® BLUE R



Solid lines indicate a direct relationship between products having the same basic CPC molecule but with physical differences. Broken lines indicate differences in basic CPC molecule and hue.

*Reg. Du Pont Trademark