

# Technical Bulletin

## RADIANT<sup>®</sup> MP-SERIES

### FLUORESCENT MICROSPHERE PIGMENTS

A daylight fluorescent pigment based on a unique thermoset resin matrix for paint and ink applications where strong solvents are used and for PVC where dye migration occurs with other types of pigments.

#### Principal Applications:

- Specialty Coatings/Inks
- Solvent Sensitive Systems
- Thermoplastic and Thermoset Elastomers
- Vinyl Plastisol

#### Features and Benefits:

A dyed/pigmented modified benzoguanamine formaldehyde thermoset copolymer

Fine particle size: Pigments exhibit excellent dispersibility.

Spherical shape: Offers excellent light scattering/opacity.

Bleed resistant: Plasticized PVC and elastomers

Solvent resistant: Allows for use in wide range of solvents.

Broad Compatibility: Wide-ranging utility

#### Typical Physical Properties:

Specific Gravity	1.3
Average Particle size <sup>1</sup>	2-3 microns
Hegman Grind	5.0 +
Decomposition Point	255 +/- 5°C Maximum
Processing Range	460°F (238°C)

<sup>1</sup> By Laser Diffraction



## Solvent Characteristics:

<u>Solvent</u>	<u>Solubility</u>	<u>Bleed</u>
Water	Insoluble	Negligible
Mineral Spirits	Insoluble	Negligible
Toluene	Insoluble	Negligible
Xylene	Insoluble	Negligible
Ethanol	Insoluble	Moderate
Methanol	Insoluble	Considerable
2-Propanol	Insoluble	Moderate
Acetone	Insoluble	Considerable
Methyl Ethyl Ketone	Insoluble	Considerable
Ethyl Acetate	Insoluble	Slight to Moderate

## Available Colors:

<u>Color</u>	<u>Code</u>
Chartreuse	MP-CH5510
Green	MP-GR5511
Orange-Yellow	MP-OY5512
Orange	MP-OG5513
Red	MP-RD5515
Cerise	MP-CE5606
Pink	MP-PK5661
Magenta	MP-MG5518
Purple	MP-PR5547
Blue	MP-BL6182

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## PLASTICS:

### Typical Applications

- Low Density Polyethylene (LDPE)
- Thermoplastic Elastomers
- Polyurethane
- Liquid Colorant
- PVC Calendaring
- Flexible PVC
- Gel Coats
- Natural and Synthetic Rubber
- High Density Polyethylene (HDPE)\*
- Polypropylene (PP)\*

\* Caution: The maximum processing temperature for HDPE and PP is not to exceed 460°F (238°C)

### Plate-out

One of the challenges that plastics processors have faced when handling fluorescent colorants is the occurrence of plate-out. This phenomenon occurs when lower molecular weight organic materials, such as oligomeric species or fluorescent dyestuffs, thermally decompose and separate from the compounding mixture. Consequently, these materials deposit on screws, blow-pins, and other metal processing equipment, resulting in what is commonly referred to as plate-out.

Due to its thermoset nature, the MP series greatly reduces, and in many cases eliminates, the occurrence of plate-out. Therefore, a simple purge with clear has been found to be a sufficient method of cleaning. This results in less down time for the processor due to extensive equipment clean-up.

### Processing Temperatures

MP is recommended for use in plastics encountering process temperatures up to 460°F. However, MP is unlike typical fluorescent colorants which "melt-in," because it remains intact as a pigment. Therefore, higher shear than is typically applied to fluorescent colorants is required to disperse the pigment and develop optimum color.

### Processing Aids

In some instances, the MP series has been found to process easily without dispersion aids. However, if it is determined that processing aids are necessary, zinc-based additives should be avoided. 0.10-0.50% of EBS (ethylene bis stearamide) can be added as a dispersion agent in dry blends or masterbatches to promote flow, enhance processability.



## **Aging and Stability**

The degree of colorfastness will be dependent on the following factors: Type of plastic, concentration of colorant, film thickness, type of exposure (outdoor versus indoor) and direction of exposure.

## **Storage**

When stored in a cool, dry environment, MP pigments have an indefinite shelf life. Colorant containers should be kept closed to minimize contamination.

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