10 Reasons Manufacturers Choose Masterbatch Over Raw Pigment

In a world filled with polymeric products, we all likely interact with colored plastics on a regular basis. Far fewer of us work with the color concentrates that bring visual appeal to these materials, however, which is likely a strong reason that many people cannot articulate the difference between masterbatch and pigment—or simply think they are the same thing.

While related, masterbatch and pigment are not synonymous. Pigment refers to dry, solid coloring substances that are suspended in a liquid to make paint, ink or other dyes. Masterbatch, alternatively, is more advanced, featuring specific concentrations of pigments and additives encapsulated by a polymer.

“Color is color, right?” you may think. “Why not just add pigment straight into my polymer mix?” The answer is that while you can interchange pigments and masterbatch in the manufacturing process, there are a variety of reasons that they are not equally strong options—and that is why most plastic and synthetic fiber producers use masterbatch. Advantages of masterbatch include the following:

1. Masterbatch comes in pellet form, making it far less messy to store, move and manipulate than powdered pigments.
2. It is simpler to feed and handle color concentrates during the manufacturing process when masterbatch is used.
3. Pigment can become airborne during manufacturing processes, potentially contaminating adjacent manufacturing lines.
4. Pigment does not disperse well on its own, but masterbatch is designed and engineered for optimal dispersion in a polymer matrix, contributing to excellent color distribution throughout the final product.
5. Less pigment is required when housed in masterbatch than when added in raw, powdered form due to dispersion chemistry.
6. The binding agent used within the masterbatch can be matched to the polymer used in the product for improved melt processing.
7. Masterbatch offers better color consistency of products from lot to lot, and even within lots, than raw pigment.
8. Masterbatch allows for better control of opacity and transparency of colored product than raw pigment.

9. Masterbatch can contain additive concentrates that deliver desirable traits such as UV stability, antioxidants, flame retardancy or optical brightening, limiting the number of feeds into your process.

10. Additive ingredients are included in masterbatch in predetermined ratios, minimizing the chance of variance during processing.

When you think about the distinction between masterbatch and pigment, it may help to picture Kool-Aid. At a glance, it may seem like Kool-Aid only adds color to a drink, much in the same way food coloring might. However, Kool-Aid also contains carefully measured amounts of flavor and scent additives that augment properties of the drink well beyond color. When you mix Kool-Aid with sugar and water, you can feel confident in the consistency of the result in a way that you might not if you were to add food coloring and other flavor/aroma-producing ingredient. In the same way, while you can color your polymers with raw pigment, the most efficient and reliable means of attaining desirable results is through use of masterbatch.

The analogy may be simple, but color science often is not. For more information on masterbatch, pigments, additives and more, feel free to reach out to the color and additive experts at Americhem for support. Email Scott Blanchard at sblanchard@americhem.com for more details.

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