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## Why Color Control Matters For Plastics

For manufacturers and consumers alike, consistent color is a measure of quality. While getting color right is a challenge for any industry, the diverse physical properties of plastics mean that they require special attention.

Plastics can be **opaque** or **transparent**, **smooth** or **textured**, **glossy** or **flat**, **pearlescent** or **metallic**. They may need to coordinate or match perfectly with other materials like metals or textiles. The dyes and colorants themselves vary and may need to survive stressful fabrication processes.

For companies developing these plastics, getting the right formulation often means balancing these competing demands for material properties without compromising on the color or quality in the finished product. But with mistakes being costly and time-consuming to rectify...

# How do you get color right the first time?

### **How Does It Work?**

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The first step towards a colorful plastic product is often pellets from a masterbatcher or compounder. Masterbatchers take resin and colorants and combine through various processes to produce monochromatic pellets.

Depending on customer specifications, masterbatchers may include additives and stabilizers in the formulation to give the polymer its desired properties such as heat resistance, moisture resistance, UV protection, or any number of other characteristics. The colorants themselves not only serve an aesthetic purpose but can serve a functional purpose as well. For example, carbon black may be added to increase the weather resistance of exterior plastic car parts and titanium white may be used to increase the reflectivity of sunlight on the back of solar cells for greater efficiency.

#### Masterbatcher | Compounder

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Converters take either masterbatch or powder compounds, mix them with melted resins, and blend in any additives that were not already imparted by a masterbatcher or compounder. The converter then applies any number of shaping techniques to the polymer such as blow molding, extrusion, thermoforming, or injection molding until the polymer reaches its desired form. After the product has been formed, the plastic is cooled, cleaned up, and then undergoes rigorous quality control checks for deformities, imperfections, and of course, color quality.

Converters create a wide range of products like plastic cutlery and shampoo bottles, children's toys and shirt buttons, furniture pieces and car parts, and so much more.

#### Converter



Who told the converter to tell the masterbatcher what color and qualities the final product should have? Sometimes it's a toy company, car manufacturer, or home goods brand. Regardless of how the plastic product will be used, precise formulation and thorough quality control from the very beginning are paramount to the overall success of the product.

#### **Final Customer**



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### Building An Effective Color-Management System Will Help You...

#### Communicate Effectively



Communicating color data via cloud technology gives everyone involved in production access to the same information. Data-driven color decisions can be made swiftly, no matter where your teams are located.

#### Achieve Consistency



Greater control over your color data means a greater chance of getting it right the first time. By removing subjectivity from your color assessments, you can ensure your end-product consistently matches the master sample.



#### Shorten Time To Market



Fast communication and first-shot color matches mean your product is delivered on time – and maybe even early! Agility and the ability to pivot in the event of an ingredient shortage is especially important.

#### Formulate Precise Colors



With the right program in place, you can formulate or reformulate with ease while basing the recipe on specific quality and physical characteristic parameters that are important to the final product.

### Where Do We Fit In?

From formulation to the quality control of finished products, there's a Datacolor solution for each spoke in the production wheel.

#### Recipe Formulation

#### System Integrations

Getting color right the first time is crucial to delivering products on time, at the right price, and in the specified color. Datacolor formulation software like Colibri provides superior first-shot color matches and can optimize your recipes in order to achieve the desired result. Formulation software also helps you pivot with agility when supply chain disruptions or government regulations limit the ingredients available to you.

Part of a streamlined production process is integrations that allow various systems to communicate for better efficiency. For example, through custom integrations Colibri can leverage data within ERP or PLM systems and suggest formulas that are optimized based on on-hand ingredients or specified price-points.

#### Data Communication

Fast, effective communication between manufacturing locations and throughout the supply chain is critical for maximizing time and cost savings. The ability to communicate and access data seamlessly between facilities using Colibri Hub prevents over development of custom color formulations, removes the need for physical samples, and allows swift decision-making no matter where you are in the world.

### Color Measurement & QC

Certain physical properties of plastic can make it challenging to accurately measure color. Datacolor has a range of tools capable of measuring a sample while accounting for the impact of gloss, opacity, and texture on color appearance.

Our spectrophotometers can also measure sample temperature, ensuring a sample has cooled to spec prior to measurement so the effect of thermochromism can be avoided.

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SEKISUI

**KYDEX** 

To meet **Sekisui Polymer Innovations'** customer demand for highly accurate color with short lead times, improving their quality control was imperative. By partnering with Datacolor they achieved repeatable measurements using high-quality spectrophotometers and proper conditioning of samples before measuring.

Before partnering with Datacolor, **Pioneer** (a leading Thai-based plastics manufacturer) relied on visual assessments for their color matching, which was both time consuming and wasteful. Today, Datacolor formulation software, combined with Datacolor spectrophotometers, allows them to capture reference data once a color formula has been selected, and use this throughout their supply chain to quickly and objectively assess their colors.

### Companies around the world trust

**Datacolor In Action** 

Companies around the world trust Datacolor's equipment and software because it meets the unique needs of plastics industry.





### How Can Digital Color Management Help Meet Broader Sustainability Goals?

Production errors have both economic and environmental repercussions, and the plastic industry is keen on finding ways to reduce waste. The number one way digital color management can help the plastics industry align with broader sustainability goals is to achieve first-shot colors. Once a masterbatch is produced, it often can't be salvaged if the color is incorrect and therefore must be disposed of.

Achieving first-shot colors can reduce waste in terms of resources consumed, energy used, and time spent, thereby limiting the impact production errors can have on overall sustainability initiatives to reduce waste.



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### Why Color Control Matters

Having a streamlined, trustworthy system to match and formulate color means greater control over the finished product, optimized use of ingredients, and easy communication across your supply chain.

Datacolor has color matching solutions for businesses throughout the plastics industry. We work with you to optimize the use of colorants, accurately measure the color of various materials, and ensure accurate colors in finished products.

Visit our website to learn more about how Datacolor helps companies in the plastics industry to **get color right.** 

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### Ready To Learn More?

Connect with us here