

Trend Report on the Coloring of Plastics

Garish or Necessarily Plain?

Colors can turn plastics products into real eye-catchers. But choosing the wrong color can cause sales to flag. And impact a product's recyclability. **Kunststoffe** asked colorant manufacturers to predict which colors will be trending in the coming year. One of the exciting findings: current supply bottlenecks are impacting the range of available colors.



For the third year in a row, the Covid 19 pandemic is shaping color trends in plastics. Like last year, colors that symbolize an end to restrictions on movement and freedom remain hugely popular. Jessica Knoch, Director of Marketing at Lifocolor, a masterbatch manufacturer, says that vibrancy is in demand: "After various lockdowns and restrictions during the pandemic, garish colors are set for a strong comeback in the year ahead. A new-found joie de vivre, a perceived sense of freedom and an enthusiasm for experiencing and showing off colors are going to be celebrated in all their glory."

She thinks that the dominant shades will be turquoises, purples, oranges,

blues and reds, owing to the heavy influence of fashion circles and designers who are adopting colors and style elements from the 1980s and 1990s. Earthy and natural shades such as khaki green, dark gray and warm reddish brown will feature prominently, she adds. These trends, too, have their origins in the pandemic, she believes, brought on by the massive changes which many consumers see happening around the world. Both trends are evoking a desire among customers for more originality, reflection and a sense of home. The need for greater environmental protection is playing a role, too, she notes.

Lifocolor is working closely with Renolit to identify current color trends. Every year, the plastics film and products manufacturer gets together with trend research institutes and experts to produce its "Color Road" predictions for trending colors. After all, color trends in plastics never occur in isolation, but emerge from the wishes of customers in those consumer industries which receive particularly high attention from customers. "In the plastics industry, the colors setting the tone are usually those divined and identified by international trend researchers, color experts and designers for future-focused consumer-goods sectors, e.g. fashion, automotive, cosmetics or architecture," explains Knoch.

Are Raw Materials Bottlenecks Influencing the Color Range?

Dirk Schmitz, Head of Coloristic at Lanxess Performance Materials, addresses another factor governing the range of available colors. He believes that the current supply bottlenecks have condemned color trends to play a lesser role in many development projects right now than they did in the past. For him, in light of the current situation, plain rather than garish colors are on the rise: "Plain colors such as grays, blues and greens are growing in popularity. This seems to be an effect of the availability issue, because the necessary colorants are still available in sufficient quantity." At Lanxess, they expect demand for safety orange in electric vehicles to keep growing into the future. Orange is used to identify high-voltage components.

Schmitz believes that the burgeoning interest in making more energy-effi-



Fig. 1. The matrix of Lifocolor's masterbatches colored in current trend colors consists of 100 % recycled PP. © Lifocolor

cient production has implications for the color sector. Any process that helps to reduce or completely eradicate post-processing of products can help achieve this goal. "A major candidate here is direct coloring – even for metal-effect colors – because it renders downstream painting superfluous," he explains.

More Sustainable Colorants

Colorant manufacturers also need to give more thought to colorants that offer greater sustainability, believes Anne Stelzer, Head of Global Marketing for the Colorant Additives business unit at Lanxess Polymer Additives. Demand for these is growing very strongly right now, she says. Lanxess has responded by developing halogen-free colorants and is currently working on deploying environmentally sound solvents in production.

That there is demand for more sustainable colorants is corroborated by Andrea Hanke, Marketing Manager at Lifocolor. "We have seen a noticeable rise in the number of inquiries about recycled, bio-based and biodegradable colorants." This means that Lifocolor has to keep an eye not only on the colorants themselves, but also on the matrix material employed in its masterbatches. To prove that attractive color batches can be produced from recycled materials, Lifocolor has made masterbatches for the colors contained in the Renolit "Colour Road" trend report based on a matrix of 100 % recycled polypropylene (rPP) (Fig. 1). Hanke points out, however, that the coloring of recycled plastics is a very complex matter, chiefly because of their own intrinsic colors. In the case of

light-colored plastics, achieving the desired color is easy and the range of possible colors is greater. But the darker the material, the more difficult coloring becomes and the narrower the spectrum of attainable colors becomes. Added to which, the heterogeneous nature of the input material is a huge problem.

Hanke believes that masterbatch manufacturers need to sensitize their customers to this issue. "Because there are all sorts of recycled plastics of different intrinsic color on the market and because the requirements vary, projects involving them are highly complex. As masterbatch manufacturers, it is incumbent on us to utilize our know-how and to raise awareness. We need to explain which color is feasible with which particular PCR or bio-grade and which properties are possible," she says. Lifocolor has enjoyed success with biodegradable polymers in the area of more sustainable colorants. The company claims that its masterbatches contain colorants which do not harm the environment when they degrade. Its Bio-C range allegedly decomposes under home-composting conditions to yield just water, CO₂ and minerals.

An ongoing major headache for colorant manufacturers when it comes to plastics recycling is the widespread use of carbon black. This is employed for pigmenting black plastics, but it prevents polymers from being sorted accurately in plastics waste recycling facilities. Plastics pigmented with carbon black elude detection by the near-infrared (NIR) sensors commonly employed in the facilities. "The first thing is to ensure that the various plastics can

be sorted. Carbon black is always problematic, because it hampers the use of NIR-detection methods," says Dirk Schöning, Sales Director at AF-Color, a masterbatch manufacturer. This has led manufacturers to develop NIR-detectable black pigments that are not based on carbon black. It is claimed that these ensure better sortability of plastics waste.

Rising Energy and Transport Costs

Aside from the foregoing issues, most manufacturers currently have concerns about the difficult supply situation and raw materials bottlenecks, which have recently led to delays in deliveries and to higher costs. "Although we managed to run our production at full capacity, bottlenecks in the logistics chain constrained our ability to supply customers, and this led to delivery delays for our products. This situation was exacerbated by the rocketing prices of freight transport," says Stefano Bartolucci, Global Market Segment Manager Plastics, Paper and Specialties at Lanxess Inorganic Pigments. Andreas Wingartz, Head of Market and Corporate Development at Lifocolor agrees. The masterbatch manufacturer has had to look for new raw materials sources in some cases, he says. "We are being forced to qualify some alternative raw materials sources so that we can secure the high quality of our products over the long term." Neither Wingartz nor Bartolucci sees the situation easing any time soon. Both expect energy and transportation costs to keep rising. In contrast, Dirk Schöning from AF-Color paints a more positive picture: "The bottlenecks haven't affected us at all so far." ■

Florian Streifinger, editor

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