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Contact:

Dr. Christine Rüdiger
C.Ruediger@finke-colors.de

Karl Finke GmbH & Co. KG
Tel.: +49 202 709 06-0
marketing@finke-colors.de
www.finke-colors.eu

Paving the way to circularity:

PCR based masterbatch series FIBAREC and FIBAPLAST NIR detectable Black masterbatches

There seems to be a new and growing awareness in society, that the challenges of our time – such as climate change, dwindling of (fossil) resources, sustainable ways to supply the world's population with food and drink and to provide modern healthcare and affordable technology for medical care – can only be met by using plastics.

If plastics are to play out their full potential without detrimental effects, a circular plastics economy is inevitable. For true circularity, recyclates have to find a wider range of application, ideally in real product to product recycling. With its FIBAREC masterbatch series based on recyclates and a range of FIBAPLAST NIR detectable Black masterbatches, leading plastic colorant producer Finke enables closing the loop when it comes to coloring plastics.

Closing the loop with recyclate based colorants

With the FIBAREC masterbatch series, Finke has developed a product line for the growing demand for sustainable plastic colorant systems. All masterbatches from the FIBAREC series are based on either on post consumer recyclates (PCR) or post industrial recyclates. This enables the production of attractive colorful plastic products made from 100 % recyclate. The FIBAREC Masterbatches available so far, are based on rPET. FIBAREC based on the carriers rPE and rPP will follow shortly.

FIBAREC masterbatches based on PCR can be processed like masterbatches based on virgin material. They can be used both in products based on recyclate as well as in products

made from virgin material. However, since the amount of masterbatch in the finished product is usually less than 2 %, a sustainable product will only be obtained if the base polymer is also obtained from recyclates.

Coloring PCR's is challenging, however. The reason is an inherent greyish coloring of the PCR material that needs to be taken into account in the matching and adjusting of the colorant. This being one of Finke's core competencies, customers can rely on the experienced colorists, who develop more than 8,000 new color shades in accordance with customer specification each year.

NIR-Sorting: The key to recycling post-consumer waste

To ensure the recyclability of black plastic products, Finke has developed a range of FIBAPLAST NIR detectable Black masterbatches for standard packaging polymers like HDPE, PP, PS and PET.

The key to recycling post-consumer waste is sorting. Common packaging polymers like PP, HDPE, PS and PET need to be separated to re-enter the material stream. Only pure material streams can ensure good properties and high quality of the recycling material. Near infrared spectroscopy (NIR) has proven very successful in the sorting process and has become standard technology in recycling plants. However, sorting plastic material colored with carbon black by NIR technology can be challenging. The carbon absorbs a good part of the infrared radiation, which renders the polymer virtually "invisible" to the NIR-sorting machine and thus indistinguishable. As a result, separating different polymers like PP, HDPE, PS and PET into the correct material streams becomes difficult.

By using a carbon black-free pigment formulation for its FIBAPLAST NIR detectable Black Masterbatches Finke ensures that black products become fully detectable on NIR-sorting machines. Thus, black HDPE-, PP-, PS- and PET- bottles, trays or caps can be separated easily into the correct recycling material streams using standard technology.

Karl Finke GmbH & Co KG • Hatzfelder Straße 174-176 • D-42281 Wuppertal



With its FIBAREC masterbatch series, Finke has developed a new masterbatch line to satisfy the growing demand for sustainable plastic colorant systems. Source: Finke



FIBAPLAST NIR detectable Black masterbatches are carbon black-free. This enables NIR-based polymer sorting and increases recyclability. Source: Finke

About Finke:

Karl Finke GmbH & Co. KG, with registered office in Wuppertal (Germany), ranks among the largest medium-sized manufacturers of pigment preparations for the plastics'-processing industry in Europe. The high-quality master batches, liquid paints, color pastes and pulverised pigment preparations are used in cosmetics' and foodstuffs' packaging, in injection-moulding applications, in technical components, in film- processing as well as in the automotive and furniture industries.

With more than 70 years of experience in the sector, the ISO 9001, 14001 and 50001-accredited company prides itself in its ability to accompany its customers and their products from the design phase all the way through to start of production. State-of-the-art technical equipment is the customer's guarantee of a second-to-none, application-specific advisory service in colors, all of which can take place either in the company's in-house laboratory facility or on the customer's own premises.

As an independent company, Karl Finke GmbH & Co. KG operates distribution bases in numerous different countries and exports its products on a worldwide scale.