GRAF GIVES A NEW LIFE TO BLACK PLASTICS USING STEINERT TECHNOLOGY

STEINERT sorting machines for difficult-to-sort plastics

CHALLENGE

The GRAF Group has committed itself to taking a responsible approach to nature. For 60 years, this Baden-based family business has been producing plastic products for the sustainable use of rainwater. Some 70% of the material in GRAF products is recycled, thanks to the company's convictions. GRAF began back in 1980 by producing the first water barrel in recycled plastic. To increase the recycling rate still further, GRAF has opted for STEINERT sorting machines for difficult-to-sort plastics and is appealing to sorters to return supposedly residual fractions to the recycling economy. "Our objective is to be using 95% secondary raw materials in our products in five years' time", says Jörg Drägert, head of raw materials management at GRAF. The focus here is on black plastics. Conventional optical sorting systems cannot detect these plastics, which thus pose a seemingly unsolvable task for recyclers. But GRAF succeeded at the challenge, and it is proud of that.

"We don't throw any plastics away!

Unfortunately, too many sorters still don't know that black plastics can be separated. There's a solution for it!

JÖRG DRÄGERT
Head of Raw Material Management

CASE STUDY: Waste Recycling
CLIENT: Otto Graf GmbH
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PROCESS

The sorting process is made possible by STEINERT technology, which not only positively separates black plastics but can also sort them accurately. A total of 16 UniSort sorting machines with hyper-spectral imaging (HSI) sensors are in use at the GRAF raw materials competence centre in Herbolzheim, where they generate PP and HDPE fractions in black and light for subsequent regranulation. Key here, along with the UniSort Black, are the UniSort Finealyse and UniSort BlackEye sorting machines, which are optimised for sorting small grain sizes.

Using near-infrared (NIR) sensors and a colour camera, UniSort Finealyse can sort plastic flakes by type and colour. A high-speed belt together with a directed air stream stabilise even the smallest objects for the best possible quality levels with minimal excessive sorting. The UniSort BlackEye is based on the same design. It features a sensor for the middle-infrared (MIR) frequency range. This allows black polyolefins (PO) to be accurately sorted into their constituent parts, such as polyethylene (PE) and polypropylene (PP), but also polystyrene (PS) and acrylonitrile butadiene styrene copolymers (ABS).

RESULT

Perfectly matched processes ultimately enable GRAF to provide warranties on its products of up to 30 years. In 2017 GRAF also received confirmation of funding from the environmental initiative programme offered by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection. GRAF had demonstrated that sorting material flows that were considered low-value and usually exploited thermally or recycled as mixed plastics could work and that these materials could be upgraded to high-quality plastic recycling. “Unfortunately, too many sorters still don’t know that black plastics can be separated. There’s a solution for it!” With STEINERT sorting machines, these plastics fractions can be recovered in post-consumer packaging sorting plant and then recycled in cooperation with GRAF. “How often can you buy a technology and be offered a customer at the same time?”

“We’re experts in the circular economy. It’s just as right for water as it is for plastics. Both of these are hugely important issues for the future.

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