For EuPIA Members to share with their customers

Customer Information Note
The acceptability of using carbon black pigment in inks for plastic packaging which is destined to be recycled.

For plastic packaging placed onto the market it is important that there is an end-of-life plan, which should involve a strategy to collect, sort and ultimately create value from the recycling stream. In Municipal Recycling Facilities (MRFs), where recycled waste is sorted, the plastic waste is normally sorted into different chemical classes by its near-infra-red (NIR) signature. The typical recyclate streams that this creates are LDPE, HDPE, PP and PET.

Black ink typically uses carbon black pigment (CI Pigment Black 7 CAS # 1333-86-4) which strongly absorbs NIR radiation and thus hinders detection via reflected light spectroscopy. However, it is very unusual for packaging to be 100% covered with black ink and studies show that limited print areas below 50% and small features like barcodes or text are not problematic, because there is still enough NIR reflection for the sorting equipment to identify and correctly sort the plastic1 There is therefore no need to completely eliminate carbon black pigments, or black inks, used to print plastic packaging. To support recyclability without sacrificing design flexibility, carbon-black-free ink solutions are available. These include CMY-based black, which is achieved by combining standard process colors cyan, magenta and yellow, as well as tailor-made spot inks that use customized pigment blends to achieve deep black tones without carbon black. Both approaches are compatible with NIR sorting systems, helping brand owners meet recyclability targets while maintaining high visual and print quality.

In contrast, when plastic packaging is mass-coloured with Carbon Black pigment, it reflects too little NIR radiation for sorting systems to identify the polymer type. If the material cannot be identified, it cannot be properly sorted and recycled. In such cases, black packaging is typically incinerated with energy recovery — a process that is less environmentally beneficial than mechanical recycling. As a result, the industry is moving away from mass-coloured black plastics, such as black PET trays, and is exploring NIR-detectable alternatives using black colorants that allow optical identification.

EuPIA Technical Committee, revised November 2025
First issued, 01/07/2019

European Printing Ink Association EuPIA - a sector of CEPE aisbl
Boulevard du Triomphe 172 • 1160 Brussels
+32 2 897 20 20 • eupia@cepe.org • www.eupia.org