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Ampacet introduces a cluster of new products to boost the recycling of plastic packaging

Global masterbatch major Ampacet has launched several new products that support the development of the global circular economy for plastics. The BIAX4CE™ range aims to boost the uptake of polyethylene (PE)-based mono-material packaging, compatibilizer ReVive™ 962 E facilitates the recycling of multi-material packaging, while REC-NIR-Black High Alcohol extends the company’s range of black masterbatches that are transparent to near-infrared (NIR), leading to an increase in the recovery of plastic articles during recycling.

Building on its expertise in masterbatches for biaxially oriented polypropylene (BOPP) film and polyethylene (PE) blown film applications, Ampacet is now offering a new portfolio designed specifically for biaxially oriented PE (BOPE) film applications. The BIAX4CE range includes antiblock, antistatic, antifog and migrating and non-migrating slip additive masterbatches, as well as white masterbatches, all formulated to meet ‘optimum quality and processing requirements’ for specific BOPE film structures, according to the company. The introduction of the new line facilitates the use of mono-material PE-based packaging and therefore supports the ongoing development of the circular economy, Ampacet says.

To meet the targets set by the European Commission for recycling of plastic packaging (50% minimum by 2025; 55% by 2030), as well as raising the quality of mechanically recycled material, mono-material packaging is preferred to multi-material packaging, the company explains. In light of this, and because the PE recycling stream is widespread and well-established whereas the PP recycling stream does not exist at scale in many countries, the development of BOPE film applications is emerging, Ampacet reports. Idle capacity on existing BOPP film manufacturing equipment can also be readily turned over to BOPE film production; an adjustment in processing conditions is all that is required with no major machinery changes, the company comments.

The use of BOPE film allows the production of mono-material laminated PE packaging for certain applications by replacing non-PE substrates such as BOPP, BOPA, BOPET and cast PP. This substitution yields an improvement in the quality of the mechanically recycled PE stream but does require compromises on some of the functionalities of the packaging such as stiffness, gloss and gas barrier, all of which are lower for BOPE, Ampacet notes. However, BOPE structures do offer some advantages compared to BOPP, including greater seal strength, improved packaging seal integrity and better puncture resistance, the company reports. BOPE also outperforms PE blown films in down-gauging, higher output and yield, better optics and tighter gauge control.

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While mono-material flexible PE and PP packaging films are advantageous with regard to their ease of mechanical recycling, some applications require multi-material packaging in order to achieve the necessary functionality – for example, to provide the appropriate gas barrier level to protect certain packaged foods. Recycling such mixed-material packaging films presents challenges as disturbance of the polyolefin recycling stream with non-polyolefin components must be avoided in order to ensure the quality level that allows upcycling into new packaging. Ampacet explains. For these materials, closed-loop processes that allow reclaimed waste or scrap film to be upgraded and reused in new, quality film applications offer a sustainable solution and provide an alternate end-of-life to landfill disposal.

An example of such a process is the in-house recycling of polyolefin–ethylene vinyl alcohol (EVOH)-based barrier film industrial scraps back into the original film structure. Targeting the specific situation where the preservation of optical and mechanical properties is required, Ampacet has recently introduced compatibilizer masterbatch ReVive 962 E. The new grade improves the homogeneity and transparency of the reprocessed polyolefin–EVOH blends, the company claims. In addition, the mechanical properties of films made with these blends are similar to the main base polymer, Ampacet adds. ReVive 962 E therefore allows higher usage of reclaimed film material and helps to reduce the consumption of virgin material in this application, the company reports. The new product, as well as BIAX4CE, is part of Ampacet’s R3 Sustainable Solutions portfolio [ADPO, January 2020, pp. 5–6].

A further recent addition to the R3 portfolio is REC-NIR-Black High Alcohol, an extension to the company’s award-winning line of NIR-transparent black masterbatches that allow sorting with NIR optical sensors and thus facilitate the recycling of black and dark-coloured plastics [ibid., November 2018, pp. 1–2]. According to Ampacet, the new black masterbatch is suitable for monolayer polyethylene terephthalate (PET) bottles and containers used for high alcohol products. Applications include hand sanitizers – currently in such high demand due to the COVID-19 pandemic – household cleaners, personal care products, over-the-counter pharmaceuticals, and wine and spirits. ‘Our REC-NIR-Black masterbatch line significantly reduces the carbon footprint by providing a second life for black plastic packaging’, comments Doreen Becker, the company’s sustainability director. The NIR-detectable technology helps to prevent black packaging waste from being diverted to landfill or energy recovery, instead allowing recyclers to obtain value from this waste and support the circular economy.

Underlining its commitment to furthering the recycling and reuse of plastics, Ampacet recently joined The Alliance to End Plastic Waste, a global not-for-profit organization with a vision to end plastic waste in the environment. A total of 47 member companies have committed more than US$1 billion to the cause. The alliance aims to develop, deploy and bring to scale solutions that will minimize and manage plastic waste. Doreen Becker will work with the Alliance on promoting recycling and reuse of plastics in the manufacturing cycle, Ampacet reports.

Alliance members use their technical, materials, logistics and engineering expertise to collaborate on ways to stop the flow of plastic waste. They also promote solutions for used plastics, including reuse, recovery and recycling. In addition, members promote infrastructure development, education and engagement, innovation and clean-up efforts.

More information: www.ampacet.com

Techmer PM’s charge enhancer improves filtration efficiency of face masks

US firm Techmer PM recently developed a charge-enhancing additive masterbatch that has proved effective in augmenting the efficacy of polypropylene (PP)-based nonwoven fabrics used in the production of face masks to reduce the transmission of the COVID-19 infection. The company reports that its Charge Enhancer additive helps these fabrics to meet and retain the filtration performance requirements laid down by the ASTM F2100 standard for medical face masks. Demand for such face masks is soaring during the current pandemic.

As the meltblown nonwoven PP filter material comes off the production line in roll form it is subjected to an electrical charge via an air plasma treatment. Known coincidentally as ‘corona’ charging, this process improves the filtration ability of the fabric, Techmer PM explains. Supplied in pellet form for addition to the PP at a typical loading...