Impact-Modified PLA Compounds

Global custom engineered thermoplastics compounder RTP Company has expanded its line of polylactic acid (PLA) bioplastic compounds to include impact modified grades suitable for select semi-durable and durable applications. These new compounds deliver enhanced impact strength and higher heat deflection temperatures than are possible with unmodified PLA resin, providing performance that is equivalent to traditional thermoplastics.
"RTP Company has developed bioplastic compounds with mechanical properties that are comparable to existing petroleum-based thermoplastics in terms of both function and processability," said Will Taber, RTP Company's Business Manager of Emerging Technologies. "Using our formulation and compounding expertise, RTP Company now has a full line of PLA-based compounds that allow bioplastics to be considered for broader use, giving product designers the ability to create eco-conscious products and meet end-use sustainability goals."

These new materials, available in both injection and extrusion grades, expand RTP Company's PLA-based product line -- which includes PLA alloyed with traditional thermoplastic resins and glass fiber reinforced PLA compounds -- to also include impact modified, nucleated, and mineral reinforced compounds. Varying levels of impact modification are available providing several combinations of stiffness and ductility. The compounds are available in both opaque and translucent versions and can also incorporate FDA compliant ingredients.

With impact modification, PLA compounds can achieve notched Izod impact performance as high as 30 times that of neat PLA, making it comparable to PC/ABS. High performance nucleators raise the heat deflection temperature up to 1.5 times, in degrees F, giving PLA bioplastic compounds performance similar to ABS, HIPS (high-impact polystyrene), and acrylic. "A unique feature of these compounds is their excellent balance of strength and stiffness," according to Taber.

PLA compounds are fully colorable and have bio-content as high as 95% depending on additive loading levels. Key applications include injection molded covers, housings, and structural components for appliance, consumer electronics, furniture, lawn/garden, medical devices, office equipment, sporting goods, tools, and toys.

The bio-based component of RTP Company's bioplastic compounds, PLA resin, is derived from renewable and sustainable resources. Additionally, its production consumes less energy and produces less CO2 than petroleum-based thermoplastics.

Bioplastics are part of RTP Company's "Eco Solutions" product portfolio that includes compounds using bio-based or recycled-content resins, natural fibers, or halogen-free flame retardant and wear resistant additives. These products allow for a broad range of design and performance options to produce eco-conscious products.

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