

Brief Product Description

Kanèsis by MICA Srl has developed a bio-composite derived from the combination of plant matrices and industrial hemp waste. Compared to other thermoplastic materials currently available on the market, their bio-composite has proven to be lighter in weight and better in terms of physical-mechanical properties.

The uniqueness and potentials of this bio-composite are due to its simplicity. It can actually be employed in all industrial applications which utilize synthetically derived thermoplastic granules as their basic material. This composite offers other benefits, too. It does not require any substantial modification to the manufacturing equipment and, because its processing temperature is lower than that of traditional thermoplastics, it reduces the environmental impact.

Kanèsis idea is based on developing a range of cost-efficient and plant-derived thermoplastic materials using vegetable biomass. The materials commonly available on today's market are metal and ceramic based, as well as petrochemical derived polymers. In particular, petrochemical polymers are easy to process and can therefore meet various production requirements. The start-up soon recognised that a truly innovative product had to be a polymeric material easy to produce, with a low temperature extrusion process, lightweight, low-priced and plant-derived. These were the few, but solid guidelines of this project centered on biomass which, besides determining the color and finishing qualities of the material, increases its tenacity.

On April 3rd 2015, Kanèsis submitted a patent application under the Italian law and one year after, on April 1st 2016, the international PCT for the composition of a thermoplastic blend made of resin and plant waste, called HempBioPlastic (HBP®). Lab testing shows that HBP® improves the material's mechanical properties, reducing its specific weight by including a dispersion of natural aggregates in the resin.

Today, industries employ several materials based on thermoplastic resin matrix and natural components; particularly natural fibres derived from kenaf, linen, jute, henequen, pineapple leaves, sisal, wood and sawdust.

Initial testing shows that HBP is 20% lighter and 30% stronger than PLA (polylactic acid), currently the most widely used bio-polymer.

Although the first application considered for the new material was the extrusion of a special filament for the rapidly evolving 3D FDM technology sector HBP® can also be used in the most diverse sectors of thermoplastics, allowing for endless future developments.

Nowaday, the company has already launched its first product, the HBP® spool for 3d-printing, on the market and it is structuring the worldwide distribution network. Some exclusive distribution agreements have already been signed, mainly outside Italy (namely, Netherlands, Belgium, UK, Luxembourg and India).