

Conductivity and more?: GRM enables new properties in PET filaments

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Graphene and its relatives (GRM) are considered to be novel wonder materials, whose excellent electronic, mechanical and thermal properties have the potential to replace commonly used materials in various fields. Besides possible applications in photovoltaics^[1], electronics, sensing^[2,3] or anti-corrosion protection^[4], the advantages of graphene as an additive to synthetic yarns is one big area in current research. Here, tensile strength, abrasion, electrical and thermal conductivity of filament yarns can be improved.^[5] The conversion of these properties from laboratory to industrial-scale production poses serious challenges that we have to face. When using GRM as additives, processes such as compounding and spinning in pilot and industrial plants have to be adapted to the properties of the material. The electrical conductivity of GRM/PET chips and yarns thus obtained was first investigated. Further tests on tensile strength, abrasion resistance and thermal conductivity revealed the differences between small scale and industrial production.

Trevira GmbH is an innovative European manufacturer of polyethylene terephthalate granulates, fibers and filament yarns. It is the only company in Europe that covers the entire value chain from monomers to finished yarn and ready-to-use fibers. Subsidiary of Indorama.

References

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Figures



Figure 1: Melt-spun PET yarns containing various amounts of graphene.