SPHERICAL PBT AND PET MICROPARTICLES PRODUCED FROM GRANULAR FEED MATERIAL

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HINTERGRUND

Polybutylene terephthalate (PBT) is an engineering thermoplastic with high chemical and thermal resistance and excellent mechanical properties. It is used e.g. for automotive applications or electric insulation. Polyethylene terephthalate (PET) is a commodity thermoplastic which is extensively used for packaging, especially beverage bottles. By providing PBT and PET free-flowing powders consisting of spherical microparticles many interesting applications, e.g. additive manufacturing, are accessible.

LÖSUNG

Via an innovative non-mechanical process granular PBT or PET material – even PET bottles – are converted to a fine powder consisting of spherical microparticles. This top-down approach allows for easy production of fine PBT and PET powders from already existing resin grades, bottles and other sources without the need to develop an expensive polymerization process dedicated to produce spherical particles. This opens up new possibilities for low cost small scale PBT and PET microparticle production aimed at highly specialized / niche applications. During the conversion of PBT feed material to particles only a minor decrease in molecular weight distribution takes place, thus providing unchanged rheological properties and no material degradation. The narrow range of the size of the microparticles is achieved without additional selection process.
ANWENDUNGSBEREICHE

- Powder-based additive manufacturing (3D printing)
  - Binder jetting
  - Selective laser sintering
- Functional fillers for paints and coatings
- High performance slurries and pastes