

PVDF microparticles produced from granular feed material

Reference No: B77205

CHALLENGE

Polyvinylidene fluoride (PVDF) is a non-toxic specialty thermoplastic polymer with high chemical resistance, high thermal stability and interesting piezoelectric properties. PVDF is used in supercapacitors, insulation, membranes, food packaging, high-end metal paints, high purity water piping and many more.

INNOVATION

Via an innovative process granular PVDF resin is converted to a fine powder consisting of spherical microparticles. This top-down approach allows for easy production of fine PVDF powders from already existing resins without the need to develop an expensive polymerization process dedicated to produce spherical particles. This opens up new possibilities for low cost small scale PVDF microparticle production aimed at highly specialized / niche applications. Possible coarse or fine fractions can be easily recycled as no changes in molecular weight distribution happen during the process. The narrow range of the size of the microparticles is achieved without additional selection process.

COMMERCIAL OPPORTUNITIES

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

DEVELOPMENT STATUS

Proof of concept

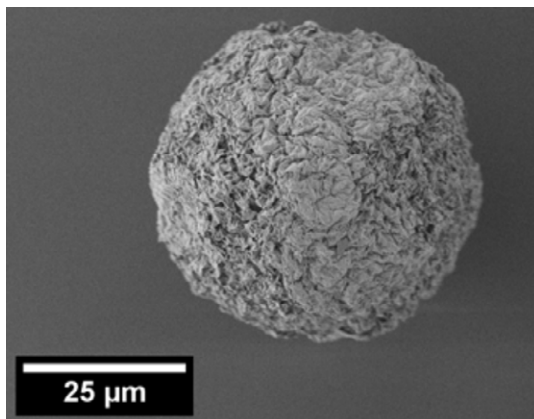


Figure 1: SEM image of a PVDF particle manufactured according to the invention.

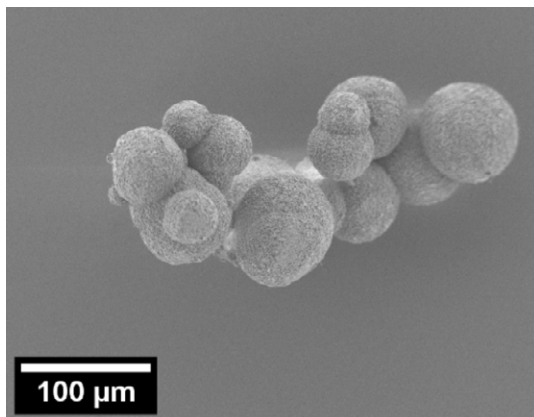


Figure 2: SEM image of a population of PVDF particles manufactured according to the invention