

Melt Spinning of Fiber for Fused Deposition Manufacturing

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Technology Summary

Conventional preparation of Fused Deposition Manufacturing (FDM) fiber relies on melting and mixing of polymers in screw-type extruders. Recent tests have shown that this process is difficult when second phase reinforcement is included in the form of a fiber. The resulting FDM fiber contains filaments shorter than those in the starting material due to the shear exerted on the material in the extruder screw and the fiber surface is rough with un-even diameter. The present invention is a method of using melt spinning produce FDM fiber with filaments to maintain uniform diameter and good FDM fiber properties. The inventors have demonstrated a method for production of reinforced melt-spun FDM fiber and the ability to print with an existing machine.

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