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(54) Title: COMPOSITE PLASTIC MATERIAL FOR SELECTIVE LASER SINTERING**(57) Abstract**

A composite powder specially adapted for use in selective laser sintering is disclosed. The composite powder includes a polymer powder dry mixed with a reinforcement powder, where the polymer powder has a melting temperature substantially lower than that of the reinforcement powder. In the case where near-fully dense parts are to be formed, the first constituent powder is preferably a semi-crystalline powder, for example nylon 11, of a composition suitable for forming near-fully dense parts when used unblended in selective laser sintering; if porous parts are desired, the polymer powder is an amorphous powder, such as polycarbonate, polystyrene, acrylates, and styrene/acrylate copolymers. The reinforcement powder is preferably microspheres of glass, preferably coated to enhance wetting and adhesion with the polymer powder when selective laser sintering is performed. Besides improving the stiffness and heat resistance of the part produced, the composite powder widens the process window over that provided by unblended powder, provides improved dimensional accuracy in the part produced, and facilitates rough breakout and smooth finishing of the part produced.