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Dependence of SLS parameters on thermal Properties of composite material of cement with polyamide12

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Abstract

SLS employs powder-processing in the construction of parts and SLS parameters depending on the thermal properties of the powder. An average of 80% to 90% of the powder in the build chamber is not sintered during the SLS process and could be reused in relation to its properties. However, the properties of un-sintered powder deteriorate due to exposure to a various temperature for extended periods of time during the SLS system material build-process in three stages, starting from warm up stage, the build stage, where the powder is exposed to just below the melting point of the material, and the cool-down stage. An experimental study of the thermal properties of composite material of cement and PA12 to determine the optimum parameters of SLS process are being investigated. The investigation uses the thermal properties of different proportions of composite material of cement and PA12. In addition, an experimental study of the thermal properties and physical properties of used or un-sintering powder to expand a methodology of controlling the SLS parameters, in turn to obtain consistent, good quality fabricated SLS specimens.

Biography

Saleh Aldahsh completed his PhD in Manufacturing Engineering, field of Rapid Manufacturing from University of Cardiff in the year 2007-2011.