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## 3D printing of drug delivery systems by laser sintering

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The increase in the number of people affected by genetic and infectious diseases resistant to conventional treatments has led to the need to develop new medical treatments by understanding the mechanisms of action and the targets of pharmacological action at the molecular level. As well as, to develop more specific transport systems for existing hydrophobic and hydrophilic drugs in order to increase the therapeutic efficacy of these drugs. Implantable drug delivery devices (DDD) technology offer several advantages over conventional methods such as oral or parenteral dosage form, allowing specific drug administration at the target site, minimizing potential side effects. This therapy may provide controlled release of a medicine for acute and chronic treatments. In recent years, Additive Manufacturing (also known as 3D printing) processes such as Selective Laser Sintering (SLS) has shown great prominence in the biomedical field, and several researchers have conducted studies showing a wide diversity of materials and applications, such as the additive manufacturing of medical products, scaffolds and drug delivery devices (DDD). SLS is a good alternative to controlling the porosity of bio-inert and bio-absorbable polymeric matrices and, consequently, control the drug release of implantable DDDs. In this study, DDDs with polymeric matrices, hydrophilic and hydrophobic drugs were manufactured and characterized. The structure and properties of the manufactured DDDs were evaluated and correlated with the processing conditions.

### Biography

Gean V Salmoria completed his Graduation in Chemistry MSc at Federal University of Santa Catarina (UFSC) in Brazil and; PhD in Microwave Processing at Institut National Polytechnique de Toulouse in France. He is a Specialist in Electro-thermal processes and Organic Material Chemistry. His research interest includes "Fabrication using microwave, ultra-violet and infra-red lasers, additive manufacturing and rapid tooling for extrusion and injection molding applied to automobile, aerospace and biomedical industries". He is a Professor in Mechanical Engineering department of UFSC since 2001. He has published more than 60 papers in reputed journals and has been serving as an Editorial Board Member of the *Journal of Advanced Manufacturing Research*.

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