

## Influence of Surface Area on Dissolution of Additively Manufactured Polyvinyl Alcohol Tablets

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**Abstract :** Additive manufacturing is revolutionising production in different industries, including pharmaceuticals. This case study explores the influence of surface area on the dissolution of additively manufactured polyvinyl alcohol parts as a polymer candidate. Specimens of different geometries and constant mass were fabricated using a Fused Deposition Modelling 3D printer. The dissolution behaviour of these samples was compared with respect to their surface area. Improved and accelerated dissolution was observed for samples with a larger surface area. This study highlights the capabilities of additive manufacturing to produce samples of complex geometries that cannot be manufactured otherwise to control the dissolution behaviour for pharmaceutical and biopharmaceutical applications.

**Keywords :** additive manufacturing, polymer dissolution, fused deposition modelling, geometry optimization

**Conference Title :** ICMSAM 2023 : International Conference on Modeling and Simulation for Additive Manufacturing

**Conference Location :** Rome, Italy

**Conference Dates :** August 24-25, 2023