

Comparison of conventional Injection Mould Inserts to Additively Manufactured Inserts using Life Cycle Assessment - DTU Orbit (08/11/2017)

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Polymer Additive Manufacturing can be used to produce soft tooling inserts for injection moulding. Compared to conventional tooling, the energy and time consumption during production are significantly lower. As the life time of such inserts is significantly shorter than the life time of traditional brass, aluminium, or steel inserts, multiple inserts might be needed to produce a large number of parts.

In an ongoing study, a simplified Life Cycle Assessment has been carried out in order to provide information on how the four alternative insert materials perform in comparison in terms of their potential environmental impact and yield throughout the development and pilot phase. Insert geometry is particularly advantageous for pilot production and small production sizes.

In this research, Life Cycle Assessment is used to compare the environmental impact of soft tooling by Additive Manufacturing (using Digital Light Processing) and three traditional methods for the manufacture of inserts (milling of brass, steel, and aluminium) for injection moulds during the pre-production phase.

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