Powder Extrusion Based on an Environmentally Sustainable Binder System.

PETER KJELDSTEEN, 2012. EUROPM 2012 CONGRESS AND EXHIBITION
Keywords: Powder extrusion, sustainability

Powder extrusion processes are typically based on an organic binder system that has to be removed before sintering the parts. In this project a new binder system based on water has been investigated in order to design a sustainable process enabling the debinding to occur at 50-70 C in air. Gas atomized powders with particle size below 22 m as well as water atomized powder with particle size below 150 m are analyzed. Both systems are based on the stainless steel grade AISI 316L. Sintering has been optimized at temperatures between 1150 and 1400 C in order to reach high mechanical properties with a stable density and shrinkage rate. Finally the process has been analyzed in a LCA (Life Cycle Analysis) comparing it with other powder handling processes.

Read more here.