

## **Low temperature laser sintering with PA12 on a standard system**

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### **Abstract.**

The laser-sintering process has been a very established AM process for many years. Disadvantages of LS are the low material variety and the thermal damage of the not processed material. The low temperature laser sintering attacks at this point and processes powder material at a build chamber temperature lower than the recrystallization temperature. This drastic reduction in temperature results in significantly less thermal damage to the material. This work deals with the low temperature laser sintering of polyamide 12 (PA12) on a commercial, unmodified laser sintering system to compare it to standardly laser sintered PA12 and to create the basis for low temperature laser sintering of high temperature materials on such a system. Initial results by changing the exposure parameters and by fixing parts on a build platform show a processing of PA12 on an EOS P396 at a build chamber temperature of less than 100 °C instead of standard approx. 175 °C which prevents thermal damage of the material. An extensive study of exposure parameters was carried out for a build temperature of 80 °C and the mechanical properties were considered.