Prosthetic Hand

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Discipulus-Ex

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Abstract

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1 Introduction

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2 Materials

2.1 Plastic

PLA and ABS are 2 of the most common FDM (Fused deposition modeling) desktop printing materials. Both materials are thermoplastics, meaning they become pliable or moldable at a certain elevated temperature and solidifies upon cooling. Via the FDM process, both materials are melted and then extruded trough a nozzle to build up the layers that create a final part.

Table 1 below compares the main properties between PLA & ABS:

Properties*	**PLA**	**ABS**
Density	$1.3 g/cm^3$	$1.0 - 1.4 g/cm^3$
Enlongation	6%	3.5-50%
Flexural Modulus	4GPa	2.1-7.6 GPa
Melting Point	160 °C	N/A (amorphous)
Biodegradable	Yes, under the correct conditions	No
Glass Transition Temperature	60 °C	105 °C

Table 1: Comparing PLA with ABS

* *Sourced from (MakeItFrom, 2009)*

2.2 Silicon

References

MakeItFrom. (2009). *Material properties database.* Available at `https://www.makeitfrom.com/`.