

# PLA Plastic

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## Mechanical Properties - Useful Links

<https://plastics.ulprospector.com/generics/34/c/t/polylactic-acid-pla-properties-processing> [1]

<https://core.ac.uk/download/pdf/143478508.pdf> [2]

<https://iopscience.iop.org/article/10.1088/1742-6596/1359/1/012107/pdf> [3]

<https://www.3dhubs.com/knowledge-base/pla-vs-abs-whats-difference/#strength> [4]

[https://www.sd3d.com/wp-content/uploads/2017/06/MaterialTDS-PLA\\_01.pdf](https://www.sd3d.com/wp-content/uploads/2017/06/MaterialTDS-PLA_01.pdf) [5]

## Summary of material properties used in analysis:

Poisson,  $\mu = 0.320$  [3]

Strength: Yield, Tensile: 35.9 MPa  
Ultimate, Tensile: 26.4 MPa } [5]

Tensile Modulus: 2.3 GPa [5]

~~Elastic Modulus: 3500 MPa [2]~~

Shear Modulus: 1287 MPa [2]

Density: 1.252 g/cm<sup>3</sup> [2] = 1252 kg/m<sup>3</sup>