

MADE IN  
AUSTRIA

# PLA HI

## High Performance Filament

55°C

46,25 N/mm<sup>2</sup>

188 kg

46,36 kJ/m<sup>2</sup>

19 cm



Poly lactide or polylactic acids are synthetic polymers, which are among the polyesters. PLA HI is largely made from renewable raw materials. It is therefore an bio-plastic. The production of bio-plastics produces significantly less CO<sub>2</sub> emissions (~ 0.6 kg CO<sub>2</sub> / kg material) than comparable materials (ABS ~ 3.8 kg CO<sub>2</sub> / kg material).

MATERIAL DATA		PRINTED
Resistance temperature		55°C
Tensile strength	ISO 527	46,25 N/mm <sup>2</sup>
Elongation at break	ISO 527	4,6 %
Impact strength	ISO 179/1eU	46,36 kJ/m <sup>2</sup>

**Processing note:** PLA is one of the standard printing materials. Easy processing, low distortion and low odor characterize it. The printing temperature is between 190 °C and 260 °C. A heated plate is not necessary, but up to 65 °C this improves the adhesion. The printing speed is selected depending on the requirements.

**Disclaimer:** The information provided in this document has been prepared to the best of our knowledge and belief, but conveys only as non-binding reference. Check if the selected material can be used for your application. For processing and 3D printing, pay attention to our safety data sheets. W2 Polymer GmbH is not liable for damages, injuries or losses caused by the use of our materials in your application.  
**Test values (printed):** The stated values are guideline values, no binding minimum values. Please note that the 3D printing process can significantly influence the properties. Furthermore, geometry and environmental influences have a major impact on end use performance. Printed on a Creabot F160 with Simplify3D in the xy plane. If you need more information, help or support, please contact us at: support@w2polymer.com



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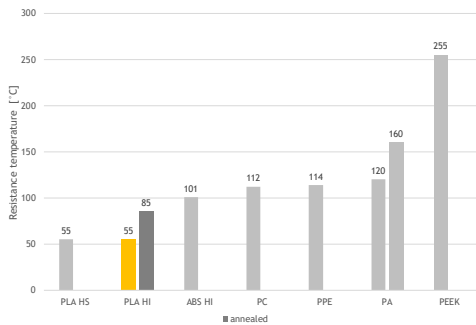
46,36 kJ/m<sup>2</sup>



19 cm

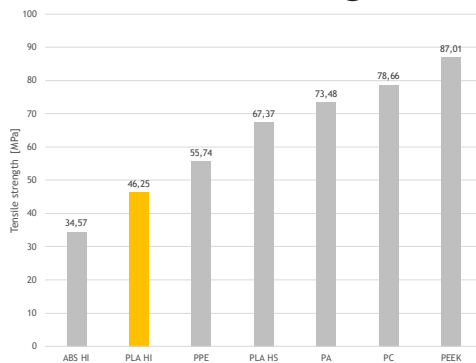
## Material comparison

### Resistance temperature



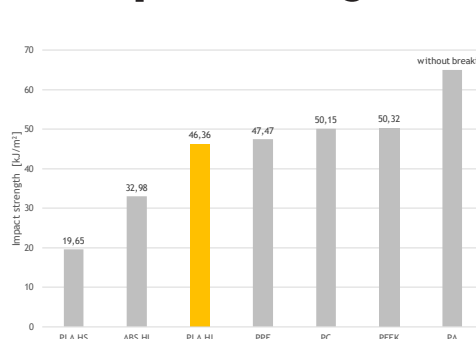
The resistance temperature is a value for the maximum operating temperature. Note, the closer you get to this value, the more the material properties change. When working at the limit we recommend checking exactly, if the material is suitable for the use case.

### Tensile strenght



The tensile strength is a value how much I can pull on the material. 1 MPa corresponds to 1 N/mm<sup>2</sup> (Force per surface). 1 kg corresponds to 9,81N. The tensile strength specimen has an cross sectional area of 40mm<sup>2</sup>. In other words, a tensile strength of 46,25 MPa means, that a tensile specimen with a cross-section of 40mm<sup>2</sup> will break at a tensile load of 188 kg.

### Impact Strenght



The impact resistance is a measure of how well the material can absorb shock and impact energy. kJ / m<sup>2</sup> (energy per cross-sectional area). An impact strength of 46,36 kJ / m<sup>2</sup> corresponds to the energy of a 1 kg heavy weight from a fall height of 19 cm, which is necessary to break a beat sample printed in PLA HI with a cross section of 40mm<sup>2</sup>.

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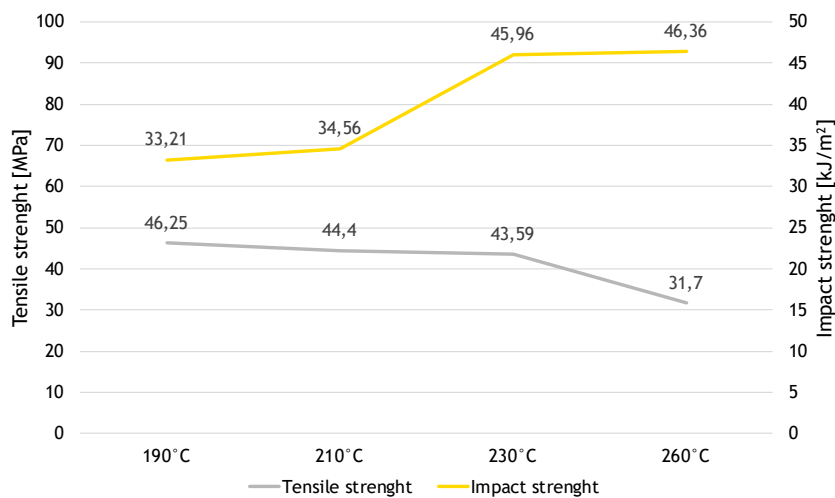
188 kg

46,36 kJ/m<sup>2</sup>



19 cm

## Printing temperature analysis



The impact strength improves with increasing printing temperature, but the tensile strength decreases. A printing temperature around 230° C represents the optimum between both properties.

### Security note:

Never print in living rooms. Make sure that the resulting vapours are not inhaled. We recommend the use of a closed printing chamber and the filtration of the exhaust air according to the legal requirements. Read the safety data sheet carefully. W2 Polymer GmbH is not liable for any damage, injury or loss caused by the use of our materials. If you need more information, help or support, please contact: [support@w2polymer.com](mailto:support@w2polymer.com)

### Food contact:

 21 CFR 177.2415

 EU 10/2011

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