



### Product Description

SKILCRAFT 3D PLA Pro is a high heat grade resin developed specifically for the manufacturing of high-performance 3D printer filament. PLA (Polylactic Acid) is an environment friendly, safe to use biodegradable thermoplastic and is the easiest material to work with in 3D printing due to its ease-of-use, dimensional accuracy, and low cost.

### Features & Benefits

- Stiff but brittle, with low odor and high print detail/resolution
- Excellent heat resistance and fast crystallization rates.
- Excellent first layer adhesion and adhesion between layers
- Minimal warping, curling and failed prints.

### Uses & Application

- PLA Pro has a good dimensional accuracy, strength and shelf life. It is the most used material in 3d printing since it is easy to print, inexpensive, and creates parts that can be used for a wide variety of applications:
- Prototype new designs, printing mission critical mechanical parts on demand, repairs to existing assets or wherever biodegradable parts are required.
- Biodegradable medical implants such as sutures, tissue screws, and tacks.
- Food and Drink packaging

### Recommended Printer Settings

- Recommended Print Speed: 40 – 100 mm/s
- Requires Annealing (to heat and then to cool to make it softer and less brittle)
- To get the maximum strength out of the 3D printed part, post-annealing procedure is recommended that can be done in an oven (at a range of 176-266F (80- 130C) to promote increased crystallization and further improve the heat deflection temperature.
- Ensure filaments are dry prior to printing. For prints with curvatures, it is recommended to turn on rafts and supports in your settings.

### Material Properties

| PROPERTIES                                   | PLA PRO   | TEST METHOD |
|--|---|-------------|
| <b>THERMAL</b>                               |   |             |
| PRINTING TEMP.                               | 190-230C  |             |
| PEAK MELTING TEMP.                           | 165-180C  | D3418       |
| GLASS TRANSITION TEMP.                       | 55-60C  | D3418       |
| HDT- HEAT DISTORTION TEMP. 66 PSI (0.45 MPa) | 144C  | E2092       |
| HEATED BED                                   | NONE REQUIRED                                   |             |
| PRINT-BED TEMP.                              | 55-70C IF NEEDED                                |             |
| BED ADHESION                                 | High water content hair spray or painter's tape |             |
| ANNEALING TEMP.                              | 80-130C   |             |
| <b>MECHANICAL</b>                            |   |             |
| TENSILE YEILD STRENGTH, PSI (MPa)            | 9,500 (65.5)                                    | D882        |
| TENSILE ELONGATION, %                        | 4.3   | D882        |
| NOTCHED IZOD IMPACT, ft-lb/in(j/m)           | .75(40)   | D256        |
| FLEXURAL STRENGTH, PSI (Mpa)                 | 18,300 (126)                                    | D790        |
| FLEXURAL MODULUS, PSI (Mpa)                  | 646,000(4357)                                   | D790        |
| <b>PHYSICAL</b>                              |   |             |
| CLARITY                                      | OPAQUE (WHEN CRYSTALLINE)                       |             |
| SPECIFIC GRAVITY. g/cc                       | 1.24  | D792        |
| MFR, g/10 min (3)                            | 7-9   | D1238       |
| RELATIVE VISCOSITY (4)                       | 4.0   | D5225       |

- For more stability and a higher quality print: Reduce the speed of the extruder to 30-60mm/second; Increase infill to 30%; Reduce layer height to 0.10mm.



### Packaging Options

- Filament Sizes Available: 1.75/2.88mm
- Spool Weight: 1 KG (standard) and 5 lbs. (on request).
- Filament spools are clear polycarbonate for easy viewing of remaining material and to enable warming of filament prior to printing reducing moisture.
- Filament comes with desiccants in the packaging and a resealable bag.

### About NCSS and SKILCRAFT 3D Filaments

SKILCRAFT 3D Filaments are premium quality, high performance US-made 3D printing filaments provided by North Central Sight Services (NCSS) exclusively for the federal government. All assembly, packing and order fulfillment services are provided by NCSS. SKILCRAFT® is a registered trademark owned and licensed by National Industries for the Blind. Learn more at [www.fed3Dsupply.com](http://www.fed3Dsupply.com) and find SKILCRAFT 3D Filaments on [www.gsaadvantage.gov](http://www.gsaadvantage.gov) under NCSS GSA Contract #47QSMA18D08P8.