PLA

POLYLACTIC ACID - *SAINSMART*

Pre and Post Processing

Apply painter's tape to bed in the absence of a heated bed, and spray with hairspray containing Polyacrylates but no lubricants for proper adhesion. PLA also requires an additional fan attached to the feed motor as it is a low temperature filament.

Use progressively higher grit sandpapers to remove ridges from layers, and apply finishing spray (XTC or similar) for a shiny finish/waterproof part.

HAZARDS (rating 1-10)

Avoid direct exposure to ignition sources, as PLA is mildly flammable.

Print in ventilated room, as fumes may be irritating.

SETTINGS TO PRINT WITH

- Temp Range: 185-215°C (ideal depends on color and supplier)
- Recommended flow multiplier: 1.15
- Recommended layer size: .1-.3mm
- Build Plate Temp: 70°C
- Recommended Fan: 100%

PRIME/UNPRIME:

Steps: 140	Steps: 110
Rate: 10,000	Rate: 10,000
Time (ms): 25	Time (ms): 20
Primes after Tool Change: 1	Primes after Tool Change: `

HOW WELL IT HANDLES PRINTS

Overhangs: 35°
Retraction: 5
Circles: 4
Layer change: 4
Fine detail: 4
Curling: 1

PROPERTIES OF MATERIAL

Modulus of Elasticity:

Yield Strength:

Fracture Point:

Modulus of Elasticity in Bending:

All parts done with a ___% infill

CHEMICAL/RESISTANCE						
Chemical	Water	Vinegar	HCl	Acetone	HF	Sulfuric Acid
Resistance (High/Limited/None)	High					
Chemical	Aqua Regia	Bleach	Gasoline	Methyl Alcohol	Ethyl Alcohol	NaOH
Resistance (High/Limited/None)					High	

Images (Left to right, top to bottom): Single walled vase, Artifact/Feature size test, Retraction/Feature size test.

Overhang: Minimum angle to the horizontal at which layers are relatively unperturbed.

Print handling parameters: 5-optimal, 4-very good, 3-fair, 2-passable, 1-very poor

Chemical Resistance: High-no observable affect after a long period of time, Limited-Slight affects over time (swelling, discoloration, slight softening, etc), None-very severely affected by chemical.

NOTES:

Due to the large contraction of PLA, low angle prints curl so much as to not only ruin your print, but also to potentially harm the nozzle or components near to the nozzle, so support is doubly important.

Tuning the temperature: most PLAs will extrude to some extent at around 200°C, which forms a good starting point for tuning the temperature. Some suppliers also suggest temperatures, although these should be taken as guidelines rather than absolutes.

Too hot: spider webs appear, and layers may be printed too thin. There may also be drooling in between parts.

Too cool: extrude will be incredibly limited and holes will appear in the part/the part will be extremely rough.