

## Technical Data Sheet

### Glass Filled PLA

#### General Information

3D-Fuel™ Glass Filled PLA filament is a composite made of biodegradable thermoplastic and glass fiber. It prints ridged parts with little to no warping or curling. It prints similarly to our Ingeo™ PLA but with enhanced physical properties such as higher strength and toughness.

#### Printing Information

Printing with Glass Filled PLA filament will be similar to experiences printing with our Ingeo PLA. A print temperature of 190 to 220 degrees Celsius is our recommended starting point. Glass Filled PLA filament prints with virtually no warping on a non-heated build surface with a raft. If your printer does have a heated bed, setting it to around 50 degrees Celsius may help with first layer adhesion when printing without a raft. Print speed should remain between 50 and 120 mm/s and should be varied based on part size.

Glass Filled PLA filament can be printed with a raft. The default raft-part spacing on most slicers should be adequate for use with Glass Filled PLA, but if you notice that the raft becomes difficult to remove, the raft-model spacing can be increased slightly to allow for easier removal.

#### Storage

Like all of our filaments, Glass Filled PLA filament comes in a vacuum-sealed reseal-able bag with a pack of silica gel. In order to prevent the filament from absorbing moisture from the air, when the spool is not in use, place it back in the bag with a silica gel pack and seal it.

#### Values

Benefits of using Glass Filled PLA filament include increased rigidity, strength, and toughness with a surface finish similar to ceramic. One thing to note about Glass Filled PLA filament is that because of its higher rigidity, removing supports may be more difficult depending on the geometry of the part.

#### Resin Typical Material Properties

Property	Standard*	Glass Filled	PLA**
Maximum Tensile Strength, MPa	ASTM D638	57	41
Tensile Strength at Yield, MPa	ASTM D638	46	37
Tensile Modulus, GPa	ASTM D638	4.0	3.2
Tensile Elongation, %	ASTM D638	3.4	1.8
Notched Impact, J/m	ASTM D256	29	-

\*All test specimen were 3D printed to more accurately represent expected usage

\*\* For comparison