

Technical Data Sheet

Entwined Hemp Filament

General Information

3D-Fuel™ Entwined - Hemp Filled filament is a composite made of biodegradable thermoplastic and short hemp fiber. It prints rigid 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 Entwined 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. Entwined 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.

Entwined filament can be printed with a raft. The default raft-part spacing on most slicers should be adequate for use with Entwined, 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, Entwined filament comes in a vacuum-sealed resealable bag. 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 and seal it.

Values

Benefits of using Entwined filament include increased eco-friendliness, unique surface finish, and the novelty of using a hemp-filled material.

Resin Typical Material Properties

Property	Standard*	Entwined	PLA**
Maximum Tensile Strength, MPa	ASTM D638	38	41
Tensile Strength at Yield, MPa	ASTM D638	16	37
Tensile Elongation, %	ASTM D638	4.6	1.8

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