**LulzBot Filament Testing Report**

Manufacturer: 3D Fuel
Filament Name: Algae-fuel
Filament Type: PLA / Algea composite
Tested By: Brent M
Date: 8/10/2015

**Ease of use:** 9/10
**Appearance:** 10/10
**Size consistency:** Above average
**Color consistency:** Great
**Print temperature:** 175-210C
**Prints using Lulzbot profiles/temps:** Yes, with minor tweaks. PLA settings with the hotend temp dropped to 185C

**Recommendation:** This is really a novel material with some pretty strong environmentally friendly credentials, and it prints easily on our machines. I'd like to see samples of 3mm from these guys to see if it matches the consistency of the 1.75mm, but I'm comfortable saying that this filament is R&D approved for use in LulzBot printers.

**Notes:**

- Great color consistency, and is a light shade of green with a surface texture similar to many wood/fiber filled PLA composites
- Very professional external packaging, definitely retail ready. Filament came packed inside in a vacuum sealed bag with desiccant on an unlabeled black spool. It's unclear if that will change for production versions.
- This filament has GREAT bridging properties even at low layer heights, very uncommon for PLA and filled PLAs.
- 1.75mm filament prints well through a standard 3mm hexagon.
- It definitely has a ...different... smell from what people are used to with PLA, something akin to seaweed but not terribly pleasant. The smell gets stronger at elevated temperatures, and is pretty bad at ~230C (in the case of switching from HIPS/ABS to the Algae-fuel).
- Printed parts have great surface finish and definition, a lot like Laybrick but with worse stringing (this is a known issue, a modified blend is being produced).
- Has some real environmentally friendly credentials, but keep in mind that this is a blend with 20% algae : 3D Fuel Algae-Fuel PLA Filament isbeing produced from wild harvested algae and PLA. Using GMO free wild harvested algae is truly a renewable resource. Utilizing algae to produce more sustainable plastic products helps to sequester environmental carbon, clean water and algae does not require the use of arable cropland as most other bioplastics require.

| **Filament** | **Variance in diameter** | **Maximum out of round** | **Extrusion temperature** |
|---|---|---|---|
| Algae-Fuel | 1.71-1.77mm (3.4%) | 1.74-1.76mm (1.1%) | 175C-210C<br><br>185C/60C used in print |

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