PLA Filament's Susceptibility to Humid Conditions

& what you can do about it.

With the humid summer weather you may have been experiencing some problems with PLA filaments. Models which you printed easily only a few weeks ago are now seemingly impossible to replicate perfectly. Now your prints are **porous, stringy and bubbly** – the exact opposite of what you want. But don't worry, you aren't alone.

Polyatic acid (PLA) is incredibly hydroscopic, meaning that it will easily absorb water from the surrounding air. The increased water content of the filament results in the porous, stringy and bubbly prints. If you find that your prints are showing these symptoms, look at the nozzle of your printer as it extrudes filament. I**f the PLA has been affected, you will see the string of filament expand as it extrudes, accompanied by puffs of steam.** Once it has cooled down, you will see tiny bubbles in the string of filament from the moisture bursting into steam.

So what can you do about it?

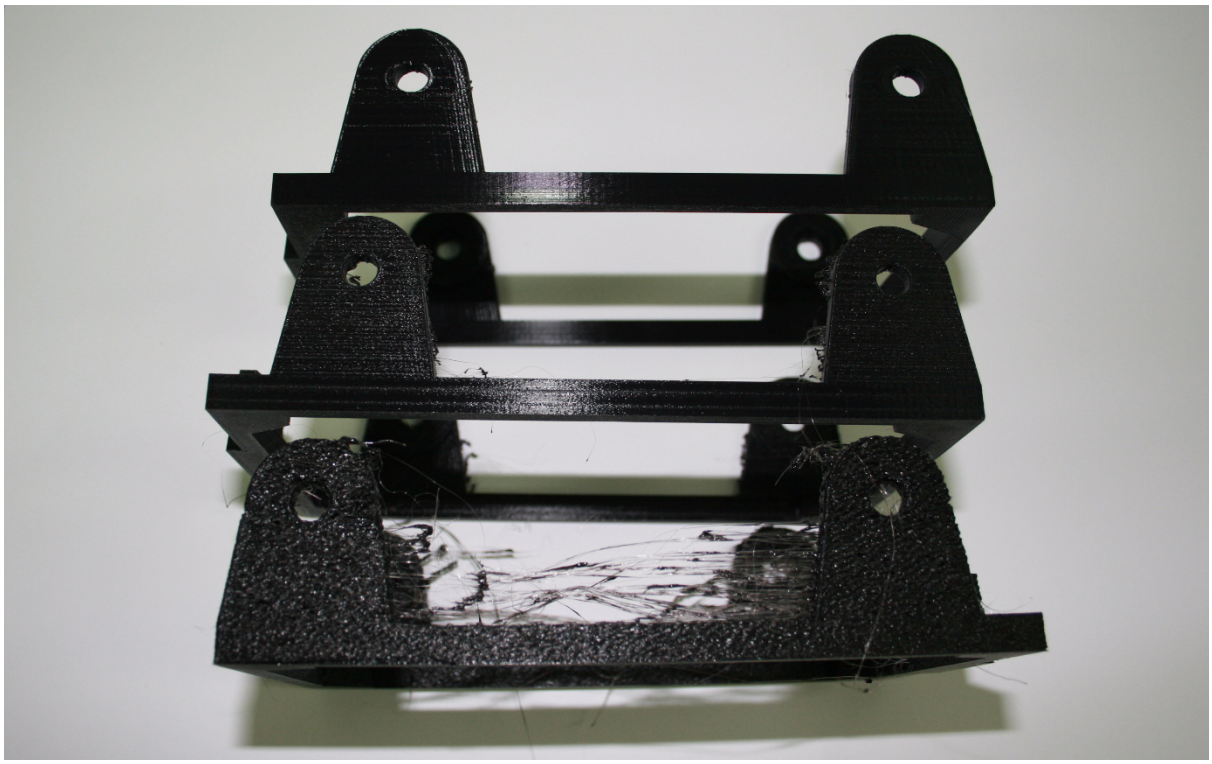
Simply store your filament in an airtight container with desiccants.

If your spool has already been exposed to moisture, there are two options that we recommend:

1. Re-store in an airtight container with desiccants for at least a few hours.
2. Use a food dehydrator 2-3 hours at less than 60 degrees. Anymore and the filament becomes droopy and will slump on the spool.

Caution: do not over dehydrate - the filament will become brittle.

However, these solutions will not allow you to print continuously in humid conditions. Bilby 3D found that while printing multiple prints the results got progressively worse as the filament continued to be exposed. So you will have to either desiccate the spool after each print or dehumidify the whole room to achieve the optimal result.



These spool holders were printed consecutively from the same spool and machine over the course of a day. You can see how the quality deteriorates over replications.

We hope this improves your prints.

Best Regards,

The Bilby 3D Team

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