What temperature and how long should you dry TPU?

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Published October 17, 2026 · Last verified October 17, 2026

Abstract. Dry TPU at 70 °C for 8 hours, per Bambu Lab and Polymaker data sheets. Prusa dries Prusament TPU 95A at 60 °C for 4 hours. Bambu's TPU spools take 90 °C.

Keywords: tpu

Table 1. The number

TPU	Shore hardness	Drying setting	Spool, rated to
Bambu Lab TPU for AMS	68D	70 °C, 8 h	PC + ABS, 90 °C
Bambu Lab TPU 95A HF	95A	70 °C, 8 h	PC + ABS, 90 °C
Bambu Lab TPU 90A	90A	70 °C, 8 h	ABS, 90 °C
Bambu Lab TPU 85A	85A	70 °C, 8 h	ABS, 90 °C
Polymaker PolyFlex TPU95-HF	95A, nearer 98A per Polymaker	70 °C, 8 h	not stated
Polymaker PolyFlex TPU95	95A	70 °C, 8 h	not stated
Polymaker PolyFlex TPU90	90A	70 °C, 8 h	not stated
Prusament TPU 95A	95A	60 °C, at least 4 h, only once it has taken on moisture	black spool from October 2025: 90 °C; older black spool: 45 °C
eSUN eTPU-95A	95A	55 °C, more than 4 h	not stated

1 What temperature and how long should you dry TPU?

Dry TPU filament at 70 °C for 8 hours in a dryer or forced-air oven. That's the setting on Bambu Lab's and Polymaker's TPU data sheets, from 85A to 68D. Prusa dries Prusament TPU 95A at 60 °C for at least 4 hours. Bambu's TPU spools are rated to 90 °C.

1.1 The number

Bambu Lab's settings and spool ratings come from its four TPU data sheets, which specify a forced-air (blast drying) oven. Polymaker's come from its PolyFlex pages, eSUN's from its eTPU-95A data sheet, and Prusa's from its TPU 95A material guide and drying article. PC is polycarbonate and ABS is acrylonitrile butadiene styrene.

For TPU in general, Prusa's drying article says 60 °C for 4 to 6 hours and Polymaker's TPU page says 50 °C for 24 hours. For bed drying, see the heated-bed drying table.

1.2 Why

Bambu Lab and Polymaker both call TPU (thermoplastic polyurethane) highly hygroscopic. Bambu's data sheets put the water it holds at saturation (25 °C, 55 percent relative humidity, or RH) at 0.61 percent for TPU 90A up to 1.20 percent for TPU for AMS. In the nozzle that water turns to steam.

With no glass transition on Bambu's TPU sheets, the coils and the spool set the ceiling. Bambu keeps TPU out of the static mode on its AMS (Automatic Material System) dryers because the layers can stick together or deform as they expand. Prusa warns that going hotter makes filament "soften and stick together."

Shore hardness doesn't move the setting; the maker does. Prusament TPU 95A is an ether-type TPU, where most are ester-type, and Prusa says it absorbs very little moisture. So Prusa calls drying "usually not necessary," while Bambu marks it required for every TPU in its drying table.

1.3 How do you dry TPU without deforming the spool?

- **Read the spool's rating.** Bambu's TPU spools take 90 °C, but Bambu warns that some third-party spools can deform.
- **Screw an older Prusament spool.** The old black Prusament spool loosens above 45 °C, below Prusa's 60 °C TPU setting. Join its sides with a screw with at least 65 mm of thread (Prusa uses M4 x 65 mm) and leave it in until the spool is empty. The current black spool needs nothing.
- **Mount refills first.** Bambu says to put spool-less filament on a reusable spool before drying.
- **Keep it turning.** In a Bambu Lab AMS 2 Pro or AMS HT, use rotation drying, not static.
- **Keep it off the heater.** In an oven, Bambu places the spool away from the heating elements, because local overheating deforms spools.
- **Stick to the time.** Prusa warns against overdrying.

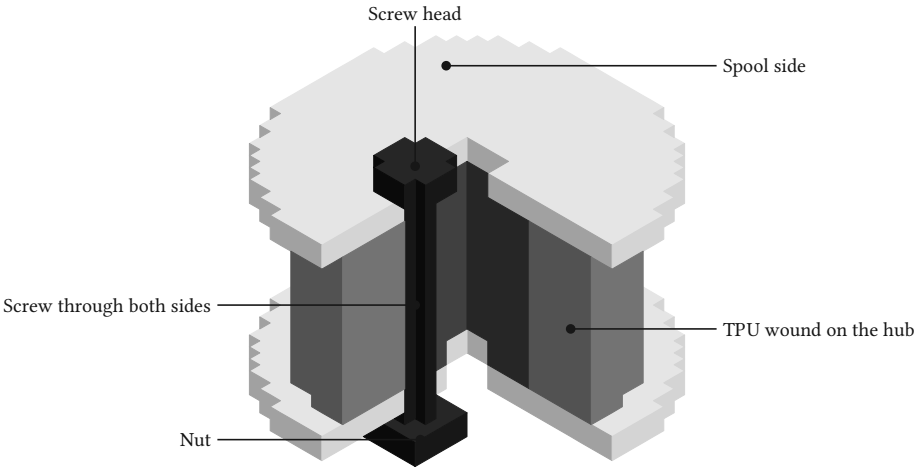


Figure 1. On the older black Prusament spool, a long screw through both sides holds them together at TPU's drying temperature, where the spool would otherwise loosen.

1.4 What filament dryer settings work for TPU?

Use your filament's setting from the table, if the dryer can get that hot. Bambu Lab's AMS HT dries every Bambu TPU at 75 °C for 18 hours. The AMS 2 Pro tops out at 65 °C for 12 hours, which Bambu says may not fully dry TPU.

Polymaker gives its PolyDryer's highest range as 68 to 73 °C. Prusa says food dehydrators usually run only at low temperatures, so check a model's maximum before buying. Bambu recommends printing TPU straight from an airtight container: the AMS HT or a filament dry box.

1.5 Can you dry TPU filament in an oven?

Yes, in a forced-air (convection) oven. Bambu Lab's TPU data sheets call for one at 70 °C (158 °F) for 8 hours. Its wiki rules out microwaves and kitchen ovens, because the areas near the elements get hot enough to damage the spool. For one 200 mm spool, it wants at least 250 by 250 by 90 mm inside.

Prusa and Polymaker allow a home oven. Polymaker says a household convection oven works at a low, stable temperature. Prusa wants an external thermometer to check it, at 60 °C (140 °F) for Prusament, and notes many home ovens can't be set that low. Even a short spell too hot damages filament, Prusa adds.

Bambu's data sheets list TPU as flammable, so stay with the oven while it runs.

1.6 What does wet TPU filament look like?

Stringing, bubbles and weak layer bonding, per Bambu Lab's TPU guide. Prusa's Prusament TPU 95A guide says bubbles in the extruded filament are usually moisture, and it lists dry filament as a first check when the nozzle clogs. Polymaker adds popping or hissing at the nozzle. Bambu says to dry TPU again after any long storage.

Stringing alone doesn't prove the spool is wet. Polymaker also blames TPU's elasticity for fine hairs.

1.7 How to check it on your own print

- **Measure the real temperature.** Put a separate thermometer by the spool, as Prusa advises for ovens.
- **Dry it and reprint the same file.** If the pops, bubbles and strings stop, moisture was the cause.
- **If it still strings,** follow Bambu Lab's TPU guide: lower the nozzle about 5 °C and cut the maximum volumetric flow rate by 0.4 mm³/s. If it oozes badly, add 0.2 mm of retraction.
- **If the coils stuck together,** the spool ran too hot or sat still. Dry the next one at a lower setting, or in rotation mode.
- **Seal it as soon as it cools.** Bambu says freshly dried filament in a room at about 55 percent RH can absorb enough water to hurt print quality within 2 to 12 hours. Store TPU with desiccant below 20 percent RH.

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Cite as: Asked 3D. "What temperature and how long should you dry TPU?." October 17, 2026. https://asked3d.com/answers/tpu-drying-temperature. Last verified October 17, 2026.