Can you dry filament in the oven?

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Abstract. Only if the oven holds the drying temperature. GE's Warm mode bakes at 170 °F (77 °C), past PLA's 60 °C glass transition. Bambu Lab says no; Prusa allows one.

Keywords: pla, petg, nylon

Table 1. The number

Filament	Bambu Lab, forced-air oven	Prusa, Prusament	Polymaker data sheet	Glass transition; margin over the hottest setting	A kitchen oven at 170 °F (77 °C)
PLA	50 °C, 8 h	45 °C, 6 h	55 °C, 6 h	60 °C (PLA Basic), 61 °C (PolyLite); 5 °C	16 to 17 °C past it
PETG	60 to 65 °C, 8 h	55 °C, 6 h	65 °C, 6 h	69 °C (PETG Basic), 81 °C (PolyLite); 4 to 16 °C	8 °C past PETG Basic's, 4 °C under PolyLite's
Nylon	75 to 85 °C, 8 to 12 h (PA6, PAHT composites)	90 °C, 6 h (PA11 Carbon Fiber)	100 °C, 8 h (PolyMide CoPA)	66 °C (CoPA); drying runs above it, so the spool is the limit	Inside Bambu's range
ABS, ASA	75 to 85 °C, 8 h	80 °C, 4 h (ASA)	70 °C, 6 h (ABS)	101 °C (PolyLite ABS); 16 °C	Inside Bambu's range

1 Can you dry filament in the oven?

Only if it holds the filament's drying temperature, and makers disagree. Bambu Lab says never use a kitchen oven. Prusa allows one checked with an external thermometer, and Polymaker a convection oven at a low, stable setting. Many can't go low enough: GE's Warm mode bakes at 170 °F (77 °C), past Bambu PLA's 60 °C glass transition.

Prusa warns that many home ovens can't be set that low. PLA is polylactic acid. The 170 °F floor is also past the 69 °C glass transition of Bambu's PETG (glycol-modified polyethylene terephthalate), but it lands inside the nylon and ABS (acrylonitrile butadiene styrene) drying ranges.

1.1 The number

Settings come from Bambu Lab's drying wiki, Prusa's drying article and Polymaker's PolyLite and PolyMide data sheets. Glass transitions come from Bambu's PLA Basic and PETG Basic sheets and the same Polymaker sheets. The 170 °F is the Warm mode in GE's PB935, JB735 and JS760 range manual. ASA is acrylonitrile styrene acrylate, and PA6, PAHT and PA11 are polyamide (nylon) grades.

1.2 Why

A kitchen oven holds an average, not a temperature. GE's support team, answering a buyer's question, says its ovens cycle the heat on and off and can read up to 30 °F (17 °C) above or below the setpoint, varying by unit. Whirlpool says its elements "may run slightly hot or cool at any point."

Bambu Lab adds that kitchen ovens heat unevenly, and the area near the heating tubes or plates can get hot enough to damage the spool or filament. It rules out microwaves too, because their temperature can't be controlled.

Drying has to stay below the point where the plastic softens. Prusa warns that going over its temperatures makes filament "soften and stick together," and that a shorter run doesn't make a high temperature safe. PLA has 5 °C of margin; a 30 °F swing is 17 °C.

1.3 Can you dry PLA in the oven?

Not on a bake or warm setting. PLA dries at 45 °C (113 °F, Prusa) to 55 °C (131 °F, Polymaker). Whirlpool's baking drawer Keep Warm starts at 145 °F (63 °C), still past PLA's glass transition.

A proof mode can go lower. Wolf's M Series ovens cap proof at 110 °F (45 °C), which matches Prusa's figure but sits below Bambu's 50 °C.

1.4 Can you dry PETG in the oven, and is it safe?

Not in a kitchen oven at its lowest setting. PETG dries at 55 °C (131 °F, Prusa) to 65 °C (149 °F, Bambu Lab and Polymaker). A 170 °F floor is 8 °C past PETG Basic's glass transition, so the coils can soften and fuse. Bambu's PETG Basic data sheet calls a kitchen or microwave oven "not compatible," and its ABS spool is rated to 70 °C.

On safety, the oven makers rule out plastic. GE's manual says not to store or use flammable materials, plastic included, in

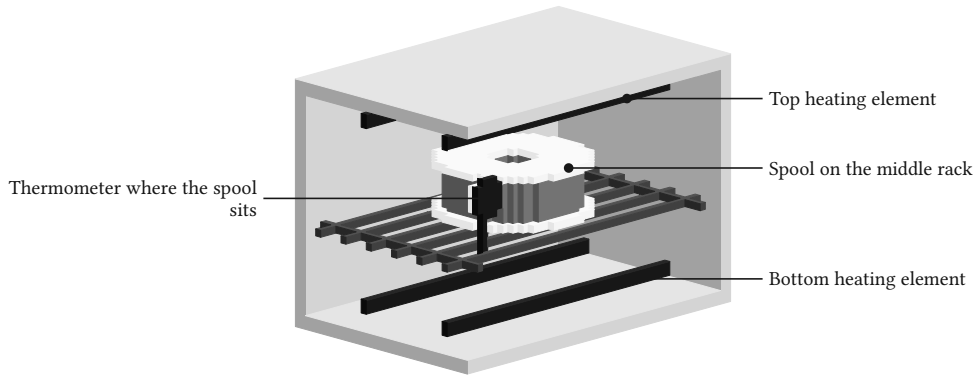


Figure 1. The area near the heating elements can get hot enough to damage a spool, so it goes on the middle rack with a thermometer beside it.

an oven. Breville's countertop oven manual says not to put cardboard, plastic or paper in it.

1.5 Can you dry nylon filament in the oven?

Yes. Nylon and ABS are the filaments where a kitchen oven's 170 °F (77 °C) floor lands in range. Bambu Lab dries PA6 and PAHT carbon- or glass-filled nylon at 75 to 85 °C (167 to 185 °F) for 8 to 12 hours. Prusa and Polymaker go hotter, to 90 °C (194 °F) and 100 °C (212 °F).

The overshoot is the risk. A 30 °F swing above 170 °F reaches 200 °F (93 °C), past the 90 °C rating of Prusa's current black spool. Bambu also warns that nylon left in open air for about 3 months becomes hard to dry, even at 80 to 90 °C in a convection oven.

1.6 Can you dry filament in a convection oven?

Yes, and it's the type the makers prefer. Bambu Lab writes its table for a forced-air oven, and Polymaker says that without good airflow, drying takes longer or needs more heat. A fan doesn't lower the setting, so check your oven's lowest convection temperature in its manual before loading PLA or PETG.

1.7 Can you dry filament in a toaster oven?

Some can be set low enough, but the spool sits close to the elements. Breville's Smart Oven Air Fryer Pro (BOV900) has a fan-assisted Dehydrate mode from 86 °F (30 °C) to 176 °F (80 °C), which covers every PLA and PETG setting above.

Bambu Lab wants at least 250 mm deep, 250 mm wide and 90 mm high for one 200 mm spool, kept away from the heating elements. Breville's manual steers food off its top rack because it's close to the elements, and it bans plastic in the oven.

1.8 How to check it on your own print

- **Read the spool's rating first.** Bambu's PLA Basic and PETG Basic spools take 70 °C, Prusament's current black spool 90 °C. The older black Prusament spool loosens above 45 °C unless an M4 x 65 mm screw joins its sides.
- **Preheat empty and measure where the spool will sit.** Prusa says to correct the dial from an external thermometer. Whirlpool warns most thermometers react too slowly to catch element cycling, so read it several times over the first hour. Breville's preheat alert sounds at 75 percent of the target, so wait for the full temperature.
- **Use the middle rack,** away from the top and bottom elements.
- **Ventilate and wear heat-resistant gloves.** Bambu Lab asks for both when it allows a household oven for regenerating desiccant, plus a thorough clean afterward.
- **Seal it straight away.** Bambu Lab says freshly dried filament at about 55 percent RH (relative humidity) can absorb enough moisture to hurt prints within 2 to 12 hours. Store it with desiccant below 20 percent RH.
- **Print a test.** Fused bottom coils mean the oven ran hot; on an enclosed printer, the heated-bed method is the fallback. If stringing and popping remain, see what wet filament does in the hotend.

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