# Can you dry filament in a food dehydrator?

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**Abstract.** Yes for PLA, PETG and TPU: Nesco, COSORI and Presto dehydrators reach 71 to 74 °C. Not for nylon or PC, which need 75 to 90 °C. Lift the trays out to fit the spool.

**Keywords:** pla, petg

**Table 1.** The number

| Filament | Bambu Lab oven setting | Prusa setting | Nesco, top 71 °C | COSORI Pioneer, top 73 °C | Presto 06301, top 74 °C |
|---|---|---|---|---|---|
| PLA | 50 °C, 8 h (PLA Basic) | 45 °C, 6 h | Yes | Yes | Yes |
| PETG | 60 to 65 °C, 8 h | 55 °C, 6 h | Yes | Yes | Yes |
| TPU | 70 °C, 8 h | 60 °C, 4 to 6 h | Yes, 1 °C to spare | Yes | Yes |
| ABS, ASA | 75 to 85 °C, 8 h | ASA 80 °C, 4 h | No | No | No |
| PC | 75 to 85 °C, 8 h | PC Blend 85 °C, 5 h | No | No | No |
| Nylon composites (PA6-CF/GF, PAHT-CF/GF) | 75 to 85 °C, 8 to 12 h | PA11 Carbon Fiber 90 °C, 6 h | No | No | No |

## 1 Can you dry filament in a food dehydrator?

Yes for PLA, PETG and TPU, if the dehydrator's top setting reaches the filament's drying temperature and the spool fits with the trays out. Nesco, COSORI and Presto models top out at 71 to 74 °C. That covers PLA's 45 to 50 °C and PETG's 55 to 65 °C, but not nylon's or polycarbonate's 75 to 90 °C.

### 1.1 The number

Drying settings come from Bambu Lab's Filament Drying Recommendations wiki (forced-air oven) and the Prusa Knowledge Base (Prusament). Top temperatures come from each maker's manual: Nesco's dehydrator guide (90 to 160 °F), the COSORI Pioneer 5-Tray manual (95 to 165 °F) and Presto's Dehydro Digital 06301 instructions (90 to 165 °F). Presto's basic Dehydro 06300 has no dial and runs at about 165 °F (74 °C), above the 60 °C glass transition on Bambu's PLA Basic data sheet. TPU is thermoplastic polyurethane and PC is polycarbonate.

CNC Kitchen's published test goes further: it dried ASA (acrylonitrile styrene acrylate) in a dehydrator at a measured 65 °C and calls the method enough for PLA, PETG and ABS (acrylonitrile butadiene styrene). Its carbon-fiber nylon didn't dry properly there, and was still losing weight after 20 hours at a real 85 °C in an oven.

### 1.2 Why

Like a filament dryer, a dehydrator uses a heater and a fan to push warm air past the trays. CNC Kitchen explains why that dries filament: moisture inside the plastic diffuses to the surface before it evaporates, and warmer air holds more water. The limit is a thermostat set for food. Nesco's guide dries meat at 160 °F (71 °C), its top setting.

The dial isn't the spool's temperature, because the heat comes from one end of the stack. Nesco puts the heater in a powerhead on the top tray; Presto's sits in the power base. At a 75 °C setting, CNC Kitchen measured 65 °C at the bottom spool and about 55 °C at the top.

### 1.3 Filament dryer vs food dehydrator: which works better?

On heat, a dehydrator holds its own. Its 71 to 74 °C top is above the 65 °C of the Bambu Lab AMS 2 Pro, which Bambu says may not fully dry TPU. A filament dryer does better on the rest: the spool fits as it is, the box seals, it reads humidity and it can feed the printer.

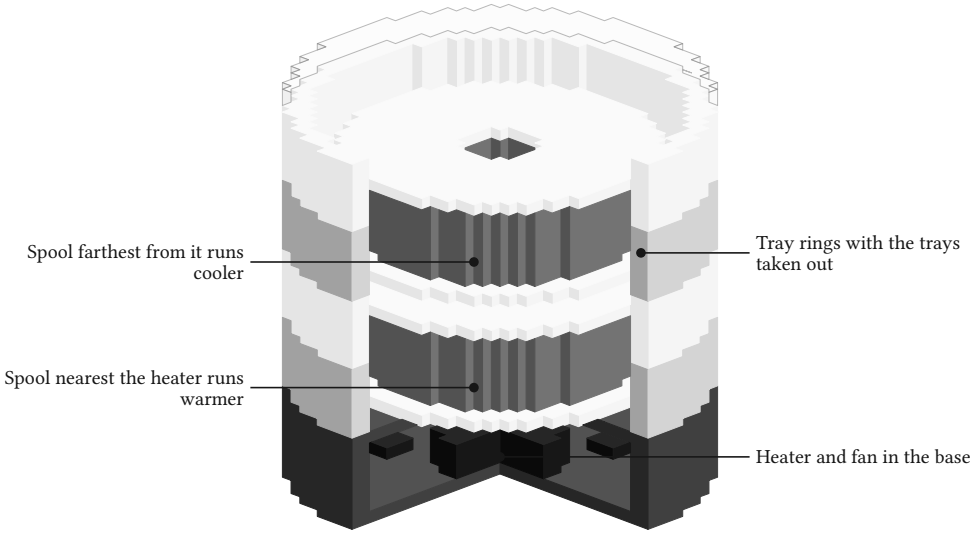



**Figure 1.** The heat comes from one end of the stack, so the spool nearest the heater runs warmer than the one farthest from it.

**Table 2.** Filament dryer vs food dehydrator: which works better?

| | Food dehydrator | Filament dryer |
|---|---|---|
| Top temperature | Nesco 71 °C, COSORI Pioneer 73 °C, Presto 06301 74 °C | Bambu Lab AMS 2 Pro 65 °C, SUNLU FilaDryer S2 70 °C, Polymaker PolyDryer 68 to 73 °C inside; Bambu sets its AMS HT to 85 °C for nylon composites |
| Spool fit | Trays come out (Prusa) or a printed ring goes in; Nesco says to run at least 4 trays, even empty | Takes the spool as it is; the PolyDryer holds spools up to 1 kg |
| Air | Vents stay open: Presto says the base and cover vents must never be obstructed | The AMS 2 Pro vents moisture through actively controlled vents while drying, and a rubber seal keeps outside air out |
| Printing from it | None of the three manuals has a filament outlet; Prusa says to store the spool once it's dry | Prusa says you can usually keep the spool in a dryer box while printing; the AMS 2 Pro drops to 45 °C for PLA during a print |
| Humidity reading | None in the three manuals | AMS 2 Pro humidity sensor; FilaDryer S2 screen shows humidity; PolyDryer hygrometer reads down to 10 percent |
| Maker's stated use | Household use only, in all three manuals. Presto and Nesco: nothing other than its intended use. COSORI: only as the manual directs. None mentions filament | Filament |

Dehydrator cells come from the three manuals and Prusa; dryer cells from Bambu Lab's AMS 2 Pro guide and drying wiki, SUNLU, Polymaker's wiki and Prusa.

### 1.4 Can you dry PLA in a dehydrator?

Yes. For PLA (polylactic acid), Prusa sets 45 °C (113 °F) for 6 hours, and Bambu Lab's PLA Basic data sheet sets 50 °C (122 °F) for 8 hours. CNC Kitchen found 4 to 6 hours usually does it for PLA and PETG. Its rule is to stay a couple of degrees under the glass transition (60 °C for PLA Basic), which rules out a fixed 165 °F dehydrator like the Presto 06300.

### 1.5 Can you dry PETG in a dehydrator?

Yes. PETG (glycol-modified polyethylene terephthalate) takes 55 °C (131 °F) for 6 hours from Prusa, or 65 °C (149 °F) for 8 hours on Bambu Lab's PETG Basic data sheet, the same setting Bambu gives its AMS dryers. Don't run the dial to the top: 71 to 74 °C is past PETG Basic's 69 °C glass transition and the 70 °C rating Bambu's data sheets give its ABS spool.

### 1.6 How do you make a DIY filament dryer from a dehydrator?

A Bambu Lab spool is 200 mm across and 67 mm tall, so measure inside the dehydrator first.

- **Take the trays out** between levels, which is Prusa's method. Not on a Nesco: its guide says to always use at least 4 trays, even if they're empty.
- **Or print a spacer ring.** Photoroamer's Filament Drying Spacer on Printables is a four-part ring that sits inside an Elite Gourmet EFD319 tray, so a 1 kg spool fits without cutting trays. The designer prints it in PETG but says the highest-temperature material you use is best. MC1457′s Filament Dryer segment glues six ABS pieces into a ring for a 320 mm (12.6 in) Westinghouse dehydrator and leaves the trays whole for food.
- **Read the accessory warnings.** COSORI says third-party parts or accessories may cause injuries, and its warranty excludes a unit modified from its original condition. Presto says to use only its own trays and accessories.

- **Keep the spool off the heating element.** That's Bambu Lab's rule for ovens, because local overheating deforms spools and filament.

### 1.7 How to check it on your own print

- **Put a thermometer by the spool.** CNC Kitchen's 75 °C setting read 55 to 65 °C at the spools. Go by the reading, not the dial.
- **Check the spool's heat rating.** Bambu's ABS spool is rated to 70 °C. Prusa rates its current black spool to 90 °C and the old black one to 45 °C, unless a screw of at least 65 mm holds its halves together.
- **Weigh the spool.** CNC Kitchen checks it now and then and stops once the weight barely changes.
- **Seal it once it's cool.** The vents stay open, so a dehydrator is no place to store a spool. Bambu Lab says freshly dried filament at about 55 percent humidity can absorb enough moisture to hurt print quality within 2 to 12 hours. Store it with desiccant below 20 percent RH (relative humidity).
- **Print a test.** If it still pops or strings, check the wet filament symptoms and dry it again. Nylon and PC need 75 to 90 °C: a dryer, an oven, or an enclosed printer's heated bed.

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