What bed temperature should you use for TPU?

Asked 3D Content Team
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Abstract. 30 to 45 °C covers most TPU. Bambu Lab lists 30 to 35 °C for its 85A, 90A, 95A HF and 68D grades; Polymaker allows 25 to 60 °C and Prusa 60 to 75 °C.

Keywords: tpu, bed-adhesion, build-plates

1 What bed temperature should you use for TPU?

Use a bed of 30 to 45 °C. Bambu Lab's data sheets list 30 to 35 °C for its four TPU (thermoplastic polyurethane) grades, soft 85A to stiff 68D. Its filament guide allows up to 45 °C on PEI (polyetherimide) plates. Polymaker lists 25 to 60 °C for PolyFlex TPU95 and TPU90; Prusa runs warmer, 60 to 75 °C.

1.1 The number

Rows run from the hardest grade to the softest. Shore hardness is the number in the name: the D scale covers stiffer plastics than the A scale, and on the A scale a lower number is softer.

The figures come from Bambu Lab's data sheets for TPU for AMS, TPU 95A HF, TPU 90A and TPU 85A, plus its filament guide. The rest are from Polymaker's PolyFlex TPU95, TPU95-HF and TPU90 data sheets, NinjaTek's printing guidelines (hardness from its technical specs page) and Prusa's flexible materials page. PC is polycarbonate.

Hardness barely moves the number. Bambu Lab gives all four of its grades 30 to 35 °C, and NinjaTek gives all three of its grades room temperature to 50 °C. Bambu Lab's sources also disagree on the Cool Plate: the TPU 95A HF sheet lists it, while the filament guide calls it "not recommended" and the X2D guide "not compatible".

1.2 TPU 95A bed temperature

Every published 95A range covers 30 to 35 °C. Bambu Lab sets 30 to 35 °C for TPU 95A HF. Polymaker allows 25 to 60 °C for PolyFlex TPU95 and 25 to 50 °C for its high-flow TPU95-HF. NinjaTek gives room temperature to 50 °C for Cheetah.

1.3 TPU bed temperature on PEI

On a PEI plate, Bambu Lab's filament guide allows 35 to 45 °C, smooth or textured. What changes between the two is the glue:

- **Smooth PEI:** glue. Bambu Lab says to apply it with any filament other than PLA (polylactic acid) "to prevent the sheet from tearing". Prusa wants glue stick or Kapton tape on its smooth and satin sheets as a separation layer.

Table 1. The number

Shore hardness and filament	Source	Bed temperature	Plate and glue named
75D, NinjaTek Armadillo	NinjaTek guidelines	Room temperature to 50 °C	Glue or blue painter's tape if the bed is not heated
68D, Bambu TPU for AMS	Bambu Lab data sheet	30 to 35 °C	Textured or Smooth PEI, glue
95A, Bambu TPU 95A HF	Bambu Lab data sheet	30 to 35 °C	Cool, Engineering, High Temperature or Textured PEI plate, glue
95A, Polymaker PolyFlex TPU95	Polymaker data sheet	25 to 60 °C	PC or textured PEI, glue when needed
95A, Polymaker PolyFlex TPU95-HF	Polymaker data sheet	25 to 50 °C	PC or textured PEI
95A, NinjaTek Cheetah	NinjaTek guidelines	Room temperature to 50 °C	Glue or blue painter's tape if the bed is not heated
90A, Bambu TPU 90A	Bambu Lab data sheet	30 to 35 °C	Smooth or Textured PEI, liquid glue or glue stick
90A, Polymaker PolyFlex TPU90	Polymaker data sheet	25 to 60 °C	PC or textured PEI, glue when needed
85A, Bambu TPU 85A	Bambu Lab data sheet	30 to 35 °C	Smooth or Textured PEI, liquid glue or glue stick
85A, NinjaTek NinjaFlex	NinjaTek guidelines	Room temperature to 50 °C	Glue or blue painter's tape if the bed is not heated
Any TPU on Bambu plates	Bambu Lab filament guide	30 to 35 °C Engineering Plate, 35 to 45 °C Smooth or Textured PEI	Cool Plate not recommended
Flexible filaments in general	Prusa Knowledge Base	60 to 75 °C, higher for bigger objects	Textured sheet bare; smooth or satin sheet with glue stick or Kapton tape

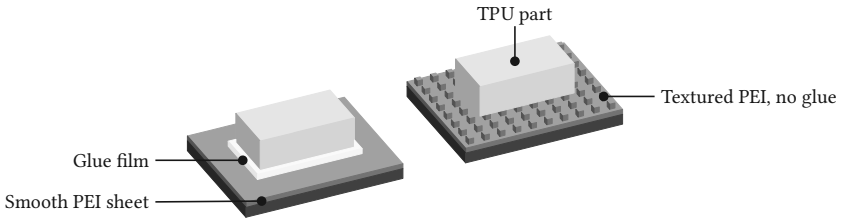


Figure 1. On smooth PEI, glue goes down first to keep the sheet from tearing; on textured PEI, Bambu Lab prints TPU bare because glue can make it stick too hard.

- **Textured PEI:** bare, in Bambu Lab's X2D guide, because glue "may cause excessive adhesion of TPU". Prusa's textured sheet also needs no separation layer. The Bambu TPU for AMS data sheet still lists glue for both PEI plates, so its own documents disagree.

Polymaker says TPU clings "tenaciously" to textured PEI, "especially at higher bed temps around 40-50°C". If parts come off hard, start from the low end of the range.

1.4 Bed temperature for Bambu TPU for AMS

30 to 35 °C, with glue, on the Textured or Smooth PEI Plate. That's the data sheet setting, and Bambu Lab printed its own test specimens at 35 °C. At 68D, TPU for AMS is the only TPU in Bambu Lab's guide that every AMS (automatic material system) model can feed. Its filament guide calls 95A and 85A TPU too soft for the AMS channel.

1.5 Maximum bed temperature for TPU

75 °C is the highest any of these sources publishes, the top of Prusa's range for big objects. Every other ceiling is lower: Polymaker 60 °C, NinjaTek 50 °C, Bambu Lab 45 °C on PEI. Bambu Lab adds that TPU softens below 60 °C. With the bed above 45 °C in an enclosed printer, it says to open the front door or lift off the top glass. Otherwise the filament can soften in the extruder.

1.6 Why

TPU barely warps, so it needs little heat to stay down. Bambu Lab's filament guide puts it with PLA and PETG (glycol-modified polyethylene terephthalate) as "not prone to warping" with "no mandatory temperature requirements", unlike ABS (acrylonitrile butadiene styrene) or nylon.

The risk runs the other way. TPU grips hard on its own: Bambu Lab's TPU guide says it "generally adheres strongly to the build plate". Extra heat makes that worse: Polymaker says excessive heat "softens bottom layers into a glue", and its fix is a bed 5 to 10 °C lower. That's why most ranges start near room temperature, and why Prusa pairs its warmer 60 to 75 °C with a textured sheet that releases TPU.

1.7 How to check it on your own print

- **Start at 35 °C.** It falls inside every range in the table except Prusa's. Set it in your slicer's filament profile for the plate you use, since Bambu Lab gives each plate its own figure.
- **Match the glue to the plate.** Glue on smooth PEI; nothing on textured PEI.
- **If the first layer lifts, go up in 5 °C steps** to the top of your filament's range: 45 °C on a Bambu PEI plate, 50 or 60 °C for Polymaker. Prusa's 60 to 75 °C is the only higher range, and Prusa raises it for bigger objects.
- **If the part welds itself to the plate, drop 5 to 10 °C,** Polymaker's fix. For the removal itself, see why TPU won't come off the build plate.
- **Above 45 °C in an enclosed printer, open the door.** Bambu Lab's advice for filaments that soften below 60 °C, TPU included.

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