Why won't TPU come off the build plate?

Asked 3D Content Team
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Abstract. TPU welds itself to a hot bed, a squashed first layer or bare smooth PEI. Bambu Lab lists 35 to 45 °C on PEI plates. The causes, the fixes and a safe way to peel it.

Keywords: tpu, bed-adhesion, build-plates

1 Why won’t TPU come off the build plate?

TPU welds itself to a hot bed, a squashed first layer or bare smooth PEI. Keep the bed low: Bambu Lab lists 35 to 45 °C for TPU on its PEI plates, and Polymaker warns that extra heat “softens bottom layers into a glue”. On smooth sheets, Prusa puts down glue stick as a separation layer.

1.1 The causes

TPU (thermoplastic polyurethane) grabs most surfaces hard. Bambu Lab’s TPU guide says it “generally adheres strongly to the build plate”, PEI (polyetherimide) plates included. Each row below is one way a part ends up stuck, with the fix its source gives.

Table 1. The causes

Cause	What the source says	Fix
Bed too hot	Polymaker: excess heat “softens bottom layers into a glue”	Drop the bed 5 to 10 °C from the recommended setting (Polymaker)
Bare smooth or satin PEI	Prusa: on a smooth or satin sheet, “apply a separation layer on it (glue stick or Kapton tape should work)”. Bambu Lab: on its Smooth PEI Plate, apply glue “to prevent the sheet from tearing” with any filament other than PLA (polylactic acid)	A thin glue-stick layer as a separator, or print on textured PEI
Glue on textured PEI	Bambu Lab: glue on the textured plate “may cause excessive adhesion of TPU”	Print on textured PEI bare
First layer squashed	Polymaker: “A nozzle too close flattens the first layer into a pancake that fuses permanently”	For TPU, a Z offset 0.05 to 0.1 mm higher and a first layer at 15 to 20 mm/s (Polymaker)
A very soft grade	Prusa: “Some very soft flex materials can bond to the bed too much and require the use of glue stick on the bed as a separator to prevent PEI damage”	Glue stick as a separator, even where the plate normally runs bare
Pulling it while hot	Bambu Lab: wait until the plate is at 35 °C or lower. Polymaker: below 40 °C	Let the whole bed cool, then flex the plate

The quotes and figures come from Prusa’s Knowledge Base page on flexible materials, Bambu Lab’s TPU guides and plate introduction, and Polymaker’s page on prints sticking too well. None of them measures pull-off force, so the rows are in no particular order.

1.2 The bed temperatures in the data sheets

Each maker writes its range for its own plates and filament. Prusa’s runs highest, but Prusa pairs it with a textured sheet it says releases TPU “without damaging the surface”.

Table 2. The bed temperatures in the data sheets

Source	TPU grade	Bed temperature	Surface named
Bambu Lab filament guide	TPU	30 to 35 °C Engineering Plate, 35 to 45 °C Smooth PEI or Textured PEI, Cool Plate not recommended	Bambu Lab plates
Bambu Lab X2D TPU guide	85A and 90A	30 to 35 °C	Glue on the Engineering and Smooth PEI plates, none on textured PEI
Prusa Knowledge Base	Flexible materials	60 to 75 °C, higher for bigger objects	Textured sheet bare, smooth or satin with a separator
Polymaker PolyFlex TPU95	95A	25 to 60 °C	"PC and Texture PEI (Glue when needed)"
NinjaTek NinjaFlex	85A	Room temperature to 50 °C	Glue or blue painter's tape without a heated bed

1.3 Why

Heat and squish do the same damage. A hot bed keeps the bottom layer soft, and a nozzle set too low presses that soft layer into the plate until, in Polymaker's words, it "fuses permanently".

The plate surface matters as much as the settings. On Prusa's textured powder-coated sheet, TPU "can be easily removed without damaging the surface". Smooth PEI is different: Prusa and Bambu Lab both put glue between the part and the sheet. There the glue works as a release layer, what Polymaker calls "a sacrificial layer".

Put the same glue on textured PEI and it backfires. Bambu Lab says the combination "may cause excessive adhesion", so textured is the one plate its guides run bare for TPU.

1.4 How to check it on your own print

1. **Get the stuck part off first.** Bambu Lab's method: don't force it. Lift one corner to open a small gap, spray isopropyl alcohol into it, then peel the part away slowly.
2. **Compare your bed setting with your plate.** Pull up your filament's data sheet and note which plate you printed on. If the bed sat at the top of the range, or the range was written for a different plate, change that first.
3. **Look at the underside of the part.** A first layer with no visible lines was squashed. Polymaker wants a skirt that "lays down cleanly with visible gaps between beads". Raise the Z offset in 0.02 to 0.05 mm steps until yours does.
4. **Check what is on the plate.** Smooth or satin PEI wants glue stick as a separator. Textured PEI, per Bambu Lab, wants none.
5. **Next time, let the bed cool before you pull.** Bambu Lab says to wait until its textured PEI plate reaches 35 °C or lower, then flex the plate.

References

[1] Flexible materials, Prusa Knowledge Base. https://help.prusa3d.com/article/flexible-materials_2057. Accessed September 23, 2026.

[2] TPU Printing Guide, Bambu Lab Wiki. https://wiki.bambulab.com/en/knowledge-sharing/tpu-printing-guide. Accessed September 23, 2026.

[3] TPU Printing Guide for X2D, Bambu Lab Wiki. https://wiki.bambulab.com/en/x2d/manual/tpu-printing-guide. Accessed September 23, 2026.

[4] Filament guide: printer, nozzle, AMS, build plate, glue compatibility and required parameters, Bambu Lab Wiki. https://wiki.bambulab.com/en/general/filament-guide-material-table. Accessed September 23, 2026.

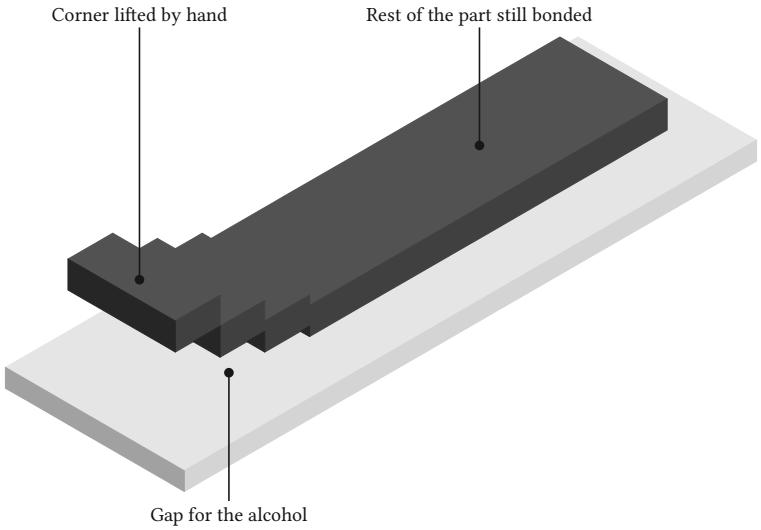


Figure 1. Lift one corner, spray isopropyl alcohol into the gap, then peel slowly, the removal method in Bambu Lab's TPU guide.

[5] Introduction to Bambu Lab Build Plates, Bambu Lab Wiki. https://wiki.bambulab.com/en/filament-acc/acc/plates. Accessed September 23, 2026.
[6] Print Sticking Too Well to Build Plate, Polymaker Wiki. https://wiki.polymaker.com/printing-tips/common-printing-issues/print-sticking-too-well-to-build-plate. Accessed September 23, 2026.
[7] PolyFlex TPU95 technical data sheet, Polymaker Wiki. https://wiki.polymaker.com/polymaker-products/more-about-our-products/documents/technical-data-sheets/tpu/polyflex-tm-tpu95. Accessed September 23, 2026.
[8] Printing Guidelines, NinjaTek. https://ninjatek.com/support/printing-guidelines/. Accessed September 23, 2026.

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