What bed temperature makes a print easiest to remove?

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Published October 15, 2026 · Last verified October 15, 2026

Abstract. Let it cool: Prusa waits for room temperature and Bambu Lab for 35 °C or lower on textured PEI. On Bambu's SuperTack plate, reheat a stuck print to about 50 °C.

Keywords: bed-adhesion, build-plates, pla, petg

1 What bed temperature makes a print easiest to remove?

A cold one, on most plates. Prusa says to wait until the steel sheet reaches room temperature, Bambu Lab recommends 35 °C or lower on its Textured PEI Plate, and Polymaker says below 40 °C. The exception is Bambu's Cool Plate SuperTack: if a PLA or PETG print won't come off, warm the plate to about 50 °C.

1.1 The number

The rows come from Prusa's Knowledge Base pages on flexible steel sheets, the textured and satin sheets and PETG, Bambu Lab's build-plate introduction and SuperTack page, Polymaker's page on prints sticking too well, and Creality's glass-bed product page. PLA is polylactic acid, PETG is glycol-modified polyethylene terephthalate, TPU is thermoplastic polyurethane and PEI is polyetherimide, the plate coating.

1.2 Why

Part and plate shrink by different amounts as they cool, and that strains the bond between them. Polymaker credits the release to these "cooling contraction mismatches" and says a bed below 40 °C maximizes the "shrinkage differences". Bending a flexible steel sheet then breaks what is left: the flex "shears the interface cleanly", in Polymaker's words.

Glue works the same way. Polymaker says glue stick, hairspray or Magigoo "contract differently on cooling, acting as a release film". Prusa calls glue under PETG, ABS, ASA and PC Blend a separation layer, and Bambu Lab uses it on smooth PEI "to prevent the sheet from tearing". Where glue belongs on textured PEI is covered on glue stick on textured PEI.

1.3 Bed temperature to remove PLA

Room temperature on Prusa's sheets and Creality's coated glass, and 35 °C or lower on Bambu Lab's Textured PEI Plate. SuperTack reverses the rule. Bambu Lab says PLA holds firmly on it at a bed of only 40 °C, and its fix for a print stuck too hard is to reheat the plate to about 50 °C. If PLA keeps sticking, Polymaker suggests printing cooler: a PLA bed at 60 °C "might need only 50 °C for easier release". Starting values are on the PLA bed temperature page.

Table 1. The number

Material	Plate	When to remove	What the maker adds
Any	Prusa smooth, satin and textured sheets	Room temperature	Flex the sheet inwards and outwards, and use a spatula only if needed
Any	Bambu Lab Textured PEI Plate	Room temperature, 35 °C or lower recommended	If the part still holds, bend the plate
Any	Polymaker, any plate	Below 40 °C	Let the whole bed cool, not just the area around the part
PLA, PETG	Bambu Lab Cool Plate SuperTack	Reheat to about 50 °C if stuck	Pry it off with the scraper, or put alcohol where the part meets the plate
PETG	Prusa satin or textured sheet	Room temperature	Prints "automatically detach after the sheet cools down"
PETG	Smooth PEI, Prusa or Bambu Lab	Room temperature, glue stick applied before printing	Bare smooth PEI can tear: Prusa warns adhesion "may be too strong"
TPU	Bambu Lab Textured PEI Plate	35 °C or lower	Polymaker peels TPU slowly at around 30 °C, with the bed still slightly warm
ABS, ASA, PC Blend	Prusa sheets	Room temperature	A glue-stick separation layer "may be required", as for PETG
Any	Creality carbon-silicone glass bed	Room temperature	The coating releases the model, which can be "removed by hand"
Any, stuck after cooling	Prusa sheets	Reheat to the print temperature for a few minutes, then cool again	"This can sometimes help"

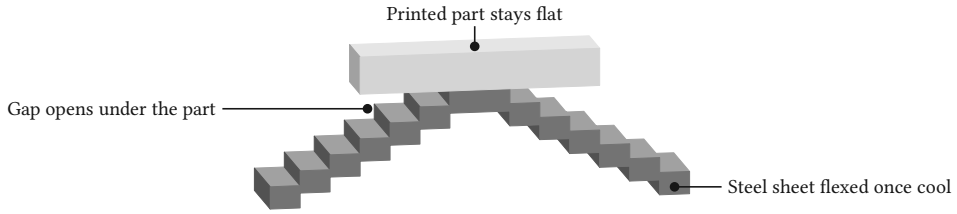


Figure 1. Part and plate shrink by different amounts as they cool, and flexing the sheet breaks what is left of the bond.

1.4 Bed temperature to remove PETG

Room temperature, as long as the plate suits PETG. Prusa recommends its textured or satin sheet, where PETG releases as the sheet cools. On smooth PEI, cooling is not enough. Prusa says printing PETG there "might damage the sheet", and the Prusament PETG data sheet allows smooth PEI only "with a glue stick". Bambu Lab asks for glue on its Smooth PEI Plate with anything but PLA. Polymaker adds glue even on textured PEI, because PET filaments "chemically weld" to it. The bed settings for printing are on the PETG bed temperature page.

1.5 Bed temperature to remove TPU

Bambu Lab says 35 °C or lower on its Textured PEI Plate. Polymaker peels at around 30 °C so the part doesn't snap back. TPU's own causes and fixes, from first-layer squish to glue on the wrong plate, are on why TPU won't come off the build plate.

1.6 Which plates release prints when cool?

Textured PEI, satin PEI and coated glass, by the makers' own descriptions. Bambu Lab lists "Self-release when Cooled Down" as a feature of its Textured PEI Plate. Prusa says prints "automatically detach after the sheet cools down" on its textured and satin sheets. Creality's carbon-silicone glass bed releases the model "once the hotbed cools back to room temperature".

Smooth PEI comes with no such promise. Bambu's SuperTack plate is built to hold PLA and PETG at a low bed temperature, so it may need heat to let go instead.

1.7 Why do prints stick harder after cooling?

Usually because the part was fused to the plate, so cooling had nothing to break. Polymaker names two causes: a first layer squashed so flat it forms "a vacuum-like seal", or filament that "chemically bonds to the surface at elevated temperatures", as PETG does to bare textured PEI. Either way, "over-adhesion skips" the release that cooling normally gives.

Prusa reads a print still stuck after cooling as a sign of the wrong filament for that sheet or a badly prepared surface. Its fix is the reheat in the last table row. Neither Prusa nor Bambu Lab explains why rewarming loosens a part. Prusa only says it "can sometimes help".

1.8 How to check it on your own print

- **Read the bed temperature on the screen.** Pull the plate at room temperature, or at 35 °C or lower on a Bambu Lab textured plate.
- **Flex first, scrape second.** Bend the sheet inwards and outwards. If you need a spatula, Prusa says to slide it under the part with the sheet slightly bent, not dig at it on a flat plate. Use a plastic one on textured and satin sheets, which Prusa says are not scratch-resistant. Residue left behind is a cleaning job: see how often to wash a PEI plate.
- **Still stuck after cooling?** On a Prusa sheet, reheat the bed to the print temperature for a few minutes and let it cool again. On SuperTack, heat to about 50 °C and pry it off with the scraper.
- **Try alcohol.** Bambu Lab's fallback is to put alcohol on the joint between part and plate, then lift the part gently with a scraper.
- **Last resort, the freezer.** Polymaker detaches the plate and freezes it for 5 to 10 minutes, wrapped in a plastic bag against condensation.
- **Prevent it next print.** Polymaker suggests dropping the bed 5 to 10 °C below the recommended setting and raising the Z offset in 0.02 to 0.05 mm steps until the skirt goes down with visible gaps between the lines.

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Cite as: Asked 3D. "What bed temperature makes a print easiest to remove?." October 15, 2026. https://asked3d.com/answers/bed-temperature-to-remove-print. Last verified October 15, 2026.