Do 3D prints dissolve in water?

Asked 3D Content Team
Published October 28, 2026 · Last verified October 28, 2026

Abstract. No. Data sheets list PLA, PETG, ABS, ASA, nylon and TPU as insoluble in water. Only PVA and BVOH support filaments dissolve, in a few hours to overnight.

Keywords: pla, petg, waterproofing

Table 1. Which filaments dissolve in water

Filament	Dissolves in water?	What the maker's sheet says	Water uptake, saturated in 25 °C air at 55 percent relative humidity
PLA (Bambu Lab PLA Basic)	No	"Insoluble in water"	0.43 percent
PETG, glycol-modified PET (Bambu Lab PETG Basic)	No	"Insoluble in water"	0.45 percent
ABS, acrylonitrile butadiene styrene (Bambu Lab ABS)	No	"Insoluble in water"	0.65 percent
ASA, acrylonitrile styrene acrylate (Bambu Lab ASA)	No	"Insoluble in water"	0.45 percent
Nylon (Bambu Lab PA6-CF, nylon 6 with carbon fiber)	No	"Insoluble in water"	2.35 percent
TPU, thermoplastic polyurethane (Bambu Lab TPU 95A HF)	No	"Insoluble in water"	1.08 percent
PVA (Bambu Lab PVA)	Yes	"Soluble in water"	6.25 percent
BVOH (Verbatim BVOH)	Yes	"Easily dissolved in cold water"	Not stated

1 Do 3D prints dissolve in water?

No, not prints in the common filaments. Bambu Lab's data sheets list PLA (polylactic acid), PETG, ABS, ASA, nylon and TPU as insoluble in water. The exceptions are water-soluble support filaments, PVA (polyvinyl alcohol) and BVOH (butenediol vinyl alcohol copolymer), which their makers say dissolve in water within a few hours to overnight.

1.1 Which filaments dissolve in water

The first seven rows come from Bambu Lab's technical data sheets, which give every filament's water uptake under the same test condition. The BVOH row is from Verbatim's product page. The uptake column is moisture from humid air, not immersion. For ABS, the Prusa Knowledge Base points to HIPS (high-impact polystyrene) supports, which dissolve in limonene instead of water.

1.2 How long PVA and BVOH take to dissolve

Table 2. How long PVA and BVOH take to dissolve

Maker's guidance	Water	Time
Bambu Lab, PVA	Warm, with agitation; no hotter than 50 °C (122 °F) when the part is PLA	A few hours to a dozen hours
Prusa Research, PVA+ and BVOH	Warm, at most 45 °C (113 °F)	A few hours to overnight, then 10 to 20 minutes in hot water and a brush
UltiMaker, PVA in its stirred PVA Removal Station	Cold tap water; above 35 °C (95 °F) can deform the print	1 to 8 hours for most prints
Polymaker, PolyDissolve S1 (PVA-based)	Warm and moving, changed every few hours	6 to 12 hours
Verbatim, BVOH	Cold	Not stated

Figures are from Bambu Lab's PVA Printing Guide, the Prusa Knowledge Base, UltiMaker's PVA Removal Station manual, Polymaker's wiki and Verbatim's product page. The temperature limits protect the printed part, not the support.

1.3 Why PLA swells a little but PVA dissolves

PVA is made to dissolve: Bambu Lab sells it as a water-dissolvable support material. In Bambu Lab's humid-air test it takes up 6.25 percent water at saturation, against 0.43 percent for PLA Basic. Bambu Lab's guide says PVA turns soft and

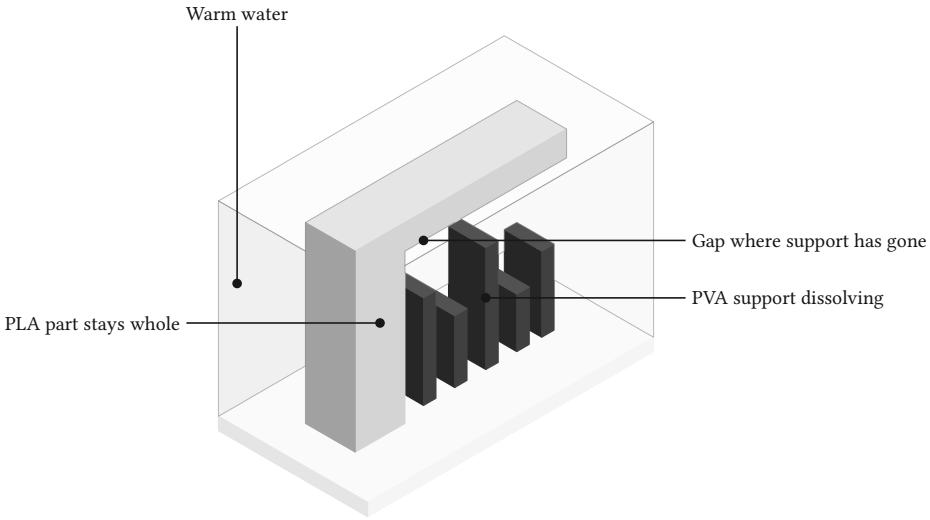


Figure 1. In the same water the PVA support dissolves away while the PLA part stays as it was printed.

sticky when damp and dissolves in liquid water. PLA, PETG and the rest stay solid.

PLA does change in water, just slowly. Prusa Research found PLA won't dissolve but can swell and wick water in some conditions; its PLA flower pots never leaked over its long test. Hot water softens PLA rather than dissolving it: the Prusa Knowledge Base says it deforms above 60 °C (140 °F).

Over time, water also splits PLA's polymer chains (hydrolysis). NatureWorks, the maker of Ingeo PLA, says moisture and heat together drive the reaction. It runs much faster in warm water than in cold: the timeline is on how long PLA lasts in water.

A print that lets water through is leaking, not dissolving. Water escapes through gaps at the seam and between lines; the fixes are on is PLA waterproof.

1.4 Do resin prints dissolve in water?

No. In Formlabs' Clear Resin V5 data sheet, a printed and post-cured 1 cm (0.39 in) cube gained 0.9 percent in weight after 24 hours in water: it took water in rather than losing material. Water does weaken cured resin. Formlabs' Grey V5 test bars kept 67.62 percent of their tensile strength after a week fully immersed in deionized water.

1.5 How to tell whether a print or spool is PVA or BVOH

1. Look at the spool first. Bambu Lab says freshly dried PVA goes damp within about 1 to 3 hours in room air at about 55 percent relative humidity, and damp PVA turns soft and sticky. A spool that has gone soft and sticky sitting out is likely PVA.
2. Cut a scrap of the unknown part or filament, plus a scrap of PLA you know.
3. Drop both in warm water no hotter than 45 °C (113 °F), Prusa's limit.
4. Check after a few hours, and again the next morning. PVA or BVOH turns soft and slimy and starts to come apart. PLA, PETG, ABS, ASA, nylon and TPU keep their shape and never go slimy.

References

[1] Bambu Filament Technical Data Sheet V3.0, PLA Basic. https://wiki.bambulab.com/filament-acc/abs-asa-pc/bambu_pla_basic_technical_data_sheet.pdf. Accessed October 28, 2026.

[2] Bambu Filament Technical Data Sheet V3.0, PETG Basic. https://store.bblcdn.com/s1/default/cb94589bf7994fdcbfa833badefae9cd/Bambu_PETG_Basic_Technical_Data_Sheet.pdf. Accessed October 28, 2026.

[3] Bambu Filament Technical Data Sheet V3.0, ABS. https://store.bblcdn.com/s7/default/23b4cf2b83d5470bb96d19970b5f3ae8/Bambu_ABS_Technical_Data_Sheet_V3.pdf. Accessed October 28, 2026.

[4] Bambu Filament Technical Data Sheet V3.0, ASA. https://store.bblcdn.com/ad7b08230c164e72856cffbe06bb7dc9.pdf. Accessed October 28, 2026.

[5] Bambu Filament Technical Data Sheet V3.0, PA6-CF. https://store.bblcdn.com/b2abc59ac250492b979a52f1ce3e61b3.pdf. Accessed October 28, 2026.

[6] Bambu Filament Technical Data Sheet V1.0, TPU 95A HF. https://store.bblcdn.com/58df32731eab4c90a7dac9b12e13ba88.pdf. Accessed October 28, 2026.

[7] Bambu Filament Technical Data Sheet V1.0, PVA. https://store.bblcdn.com/s7/default/868930e5a44944258586caa250cc8143/Bambu_PVA_Technical_Data_Sheet.pdf. Accessed October 28, 2026.

[8] PVA Printing Guide (Bambu Lab Wiki). https://wiki.bambulab.com/en/filament-acc/filament/pva-printing-guide. Accessed October 28, 2026.

[9] Water-soluble materials (PVA/BVOH) (Prusa Knowledge Base). https://help.prusa3d.com/article/water-soluble-materials-pva-bvoh_162860. Accessed October 28, 2026.

[10] Ultimaker PVA Removal Station, Installation and user manual v1.4 (UltiMaker). https://um-support-files.ultimaker.com/manuals/user-manual/PVAR/PVA%20Removal%20Station%20-%

20User%20manual%20-%20ENv1.4.pdf. Accessed October 28, 2026.
[11] PolyDissolve S1 (Polymaker Wiki). https://wiki.polymaker.com/polymaker-products/polymaker-filaments/specialty-filament/polydissolve-tm-s1. Accessed October 28, 2026.
[12] BVOH 3D Filament 1.75 mm - Natural (Verbatim). https://www.verbatim-europe.com/en/3d/products/verbatim-bvoh-filament-175-mm-natural-55903. Accessed October 28, 2026.
[13] Watertight 3D printing PT1: Vases, cups and other open models (Prusa Research blog). https://blog.prusa3d.com/watertight-3d-printing-pt1-vases-cups-and-other-open-models_48949/. Accessed October 28, 2026.
[14] PLA (Prusa Knowledge Base). https://help.prusa3d.com/article/pla_2062. Accessed October 28, 2026.
[15] Composting (NatureWorks). https://natureworksllc.com/sustainability/end-of-life-opportunities/composting. Accessed October 28, 2026.
[16] Clear Resin V5 Technical Data Sheet (Formlabs). https://formlabs-media.formlabs.com/filer_public/dd/7f/dd7f3de9-55ae-4c82-ac52-408a4b5df64d/clear_resin_v5_tds___formlabs.pdf. Accessed October 28, 2026.

Cite as: Asked 3D. “Do 3D prints dissolve in water?.” October 28, 2026. https://asked3d.com/answers/do-3d-prints-dissolve-in-water. Last verified October 28, 2026.