

Iron-filled PLA printing

3DP-030 / REV A / 2026.09.01

PLA containing iron particles can create a heavier, metal-like decorative print that responds to a magnet. Suitable uses include display pieces, weighted decorative components, and experimenting with metallic finishes. The printed plastic is not a permanent magnet and is not equivalent to a solid iron component. Confirm the material's exact brand and filler type. Feed gently: heavily filled filament can be brittle. Set filament density from the manufacturer for accurate weight estimates. Use a release/adhesion treatment approved for the plate.

STATUS	Recovered/Partial
CLASSIFICATION	3DP
MATERIAL	3D PRINT / MAKER
DISPOSITION	PUBLIC / RECOVERED/PARTIAL
CATEGORY	3D Printing
RECORD TYPE	project

TECHNICAL NOTES

PLA containing iron particles can create a heavier, metal-like decorative print that responds to a magnet. Suitable uses include display pieces, weighted decorative components, and experimenting with metallic finishes. The printed plastic is not a permanent magnet and is not equivalent to a solid iron component.

GOAL

Run the first test described in this guide and record the result for iron-filled pla printing.

SOURCE STATE

Starting profile-awaiting Robert's retest

SETTINGS / STARTING POINT

NOZZLE	Wear-resistant 0.6 mm where supported
LAYER HEIGHT	0.24 mm with 0.6 nozzle
NOZZLE TEMPERATURE	Manufacturer-specific; Proto-pasta's iron PLA example uses 185-215
BED	50-60 as an initial trial if allowed by the product

OUTER WALL / OTHER EXTRUSION	25-30 / 30-45
FIRST LAYER	15-20
PART COOLING	Begin around 50% after initial layers; tune detail versus bonding
WALLS / INFILL	3 walls, 15-30%; increase deliberately for weight
ENCLOSURE	Heated chamber generally unnecessary for a PLA-based product

PREPARATION / NOTES

Confirm the material's exact brand and filler type. Feed gently: heavily filled filament can be brittle. Set filament density from the manufacturer for accurate weight estimates. Use a release/adhesion treatment approved for the plate.

EQUIPMENT

- FDM printer / slicer
- Slicer project
- Calipers or inspection method

MATERIALS

- PLA

METHOD / STEPS

1. Confirm printer, nozzle, plate, and material identity.
2. Start from the recorded profile or the slicer default for that material.
3. Print a small first-layer and geometry test before the full part.
4. Inspect adhesion, dimensions, surface, supports, and failure mode.
5. Save the successful project with temperatures, speeds, and revision notes.

THINGS TO WATCH FOR

Abrasive filler wears a brass nozzle. Added iron does not establish higher structural strength. PLA's heat limitations still matter. Magnetic attraction depends on filler loading, thickness, and the magnet; do not treat it as a substitute for an embedded neodymium magnet. Iron may rust, which can be an intentional finish or an unwanted change. Capture sanding dust.

FIRST TEST / WHAT TO RECORD

A small tile for surface finish and magnet-attraction testing before making a full decorative part.

RESULT / WHERE THIS STANDS

A small tile for surface finish and magnet-attraction testing before making a full decorative part.

TROUBLESHOOTING

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SPECIFICATION

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DEVELOPMENT HISTORY

2026.09.01 / Rev A

Imported as an independent manifest record; public copy keeps uncertainty visible.

REFERENCE NOTES

Proto-pasta Magnetic Iron PLA (<https://proto-pasta.com/pages/magnetic-iron-pla>). This is a formulation-specific example, not a confirmed identification of Robert's filament.

HOW-TO SOURCES

Proto-pasta Magnetic Iron PLA

<https://proto-pasta.com/pages/magnetic-iron-pla>

RELEASED MATERIAL / SOURCE LINKS

3dp-030-public-summary.txt

PUBLIC SUMMARY / RECOVERED NOTES

<https://u225x.com/downloads/manifest-records/3dp-030-public-summary.txt>

RETURN TO THE LIVING RECORD

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This PDF preserves the public notes at this revision. Visit the record for updates and attached images.

<https://u225x.com/record/3DP-030>