

FUSED FORM CORP · PROTOLAB 3D S.A.S.

PELLET MATERIALS GUIDE FOR SCENOGRAPHY

Selection, costs and finishes for large-format props

2025 Edition · English

CONTENTS

- 01 Material comparison
- 02 Selection by prop type
- 03 Cost table per kilogram
- 04 Finishes for stage painting
- 05 Quotation checklist

SECTION 01

Material comparison

The most common materials for large-format FGF printing for scenography, film props and sculptures. Each has specific advantages by piece type and budget.

| Material | Mechanical strength | Max. use temp. | Surface finish | Outdoor | Print ease | Relative cost |
|--------------|---------------------|----------------|----------------|----------|------------|---------------|
| PLA | ★★★★■ | 55–60°C | Very good | No | ★★★★★ | Low |
| HIPS | ★★★★■ | 95–100°C | Excellent | Yes (UV) | ★★★★■ | Medium |
| PETG | ★★★★■ | 70–75°C | Good | Limited | ★★★★■ | Medium |
| ABS | ★★★★■ | 85–90°C | Good | Limited | ★★★★■ | Low |
| TPU | ★★■ | 60–70°C | Fair | No | ★★■ | Medium |
| Glass fiber | ★★★★★ | 110°C+ | Post-proc. | Yes | ★★■ | High |
| Carbon fiber | ★★★★★ | 120°C+ | Post-proc. | Yes | ★★■ | Very high |

* Composites require hardened nozzle. Max. use temp. = ambient temp. before deformation.

QUICK RECOMMENDATIONS

| | |
|-------------------------|----------------------------------------------------------------------------------------------------------------|
| White HIPS | First choice for theatrical scenography. Heat-resistant to stage lights, paintable, excellent primer adhesion. |
| PLA | Ideal for prototypes and short-lifespan indoor pieces. Most affordable and easiest to print. |
| PETG | Good cost-to-strength balance. Recommended for film props not exposed to heat. |
| HIPS / composite | For outdoor use (theme parks, open-air events) always HIPS or composite. PLA deforms in sunlight. |

SECTION 02

Selection guide by prop type

Use this table to choose material before modeling. Material determines printing parameters, finish and final cost.

| Prop type | Condition | Recommended material | Alternative |
|--------------------------------------|------------------|----------------------|-------------|
| Columns / scenic architecture | Interior | White HIPS | White PLA |
| Human figures and sculptures | Interior | HIPS or PETG | PLA |
| Film / TV props | Controlled | PETG or HIPS | ABS |
| Museum sculptures | Permanent indoor | HIPS | Wood PLA |
| Event installations | Temp. indoor | PLA | PETG |
| Outdoor structures | Open air | HIPS | Glass fiber |
| Theme park props | Perm. outdoor | HIPS + coating UV | Glass fiber |
| Flexible / articulated pieces | Any | TPU | — |
| Load-bearing parts | Any | Carbon fiber | Glass fiber |

KEY TIP

For pieces to be painted with acrylic stage paint, HIPS is always the best option: epoxy primer adheres perfectly and the surface withstands impacts on stage.

SECTION 03

Cost table per kilogram

Reference prices for standard industrial pellet. Vary by local supplier and purchase volume. 2025 data.

FGF pellet costs 8–12x less than equivalent spool filament. On a 5 kg prop savings can exceed USD 80 in material alone.

| Material | México (MXN/kg) | Colombia (COP/kg) | USA (USD/kg) | Kg / prop 60–80 cm | Kg / prop 1.2–1.5 m |
|--------------------|-----------------|-------------------|--------------|--------------------|---------------------|
| Virgin PLA | \$180–220 | \$15,000–18,000 | \$2.5–3.5 | 1–2 kg | 4–7 kg |
| Virgin HIPS | \$250–320 | \$20,000–26,000 | \$3.5–5.0 | 1–2 kg | 4–7 kg |
| Virgin PETG | \$220–280 | \$18,000–23,000 | \$3.0–4.5 | 1–2 kg | 4–7 kg |
| Virgin ABS | \$160–200 | \$13,000–17,000 | \$2.0–3.0 | 1–2 kg | 4–7 kg |
| Recycled PLA | \$80–120 | \$7,000–10,000 | \$1.2–2.0 | 1–2 kg | 4–7 kg |
| Recycled HIPS | \$130–170 | \$10,000–14,000 | \$2.0–3.0 | 1–2 kg | 4–7 kg |
| Glass fiber comp. | \$400–600 | \$34,000–50,000 | \$5.0–8.0 | 0.8–1.5 kg | 3–5 kg |
| Carbon fiber comp. | \$1,200+ | \$100,000+ | \$15+ | 0.8–1.5 kg | 3–5 kg |

TYPICAL VOLUME DISCOUNTS

| | |
|---------|-----------------------------------|
| 25 kg | 5–8% discount |
| 50 kg | 10–15% discount |
| 100 kg | 18–25% discount |
| 200 kg+ | Negotiated price with distributor |

SECTION 04

Finishes for stage painting

The finishing process for FGF pieces differs from EPS or fiberglass. Layer lines are worked with sanding and filler after printing.

STANDARD FINISHING PROCESS

| | |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|
| 01 | <p>Printing</p> <p>Piece comes off with visible layer lines. Normal in large-format FGF (4–8 mm nozzle).</p> |
| 02 | <p>Coarse sanding</p> <p>Grit 60–80. Removes peaks and smooths pronounced lines. Use mask.</p> |
| 03 | <p>Filler / high-build primer</p> <p>Body filler or high-build primer. Covers pores and homogenizes the surface.</p> |
| 04 | <p>Fine sanding</p> <p>Grit 150–220. Smooth surface ready for paint. For very fine finishes end with 320.</p> |
| 05 | <p>Adhesion primer</p> <p>Epoxy or vinyl primer for plastics. Essential for paint to bond properly.</p> |
| 06 | <p>Paint</p> <p>Acrylic, vinyl or epoxy stage paint. Same products as over EPS or fiberglass.</p> |

RECOMMENDED PRODUCTS

| | |
|--------------------------|--------------------------------------------------------------------------------------|
| Filler | Plastic body filler, Bondo, or epoxy filler for humid environments. |
| Primer | Epoxy for plastics (best adhesion). Alternative: automotive vinyl primer. |
| Base paint | Water-based acrylic for indoor. For outdoor: high UV-resistance enamel. |
| Outdoor coating | Clear exterior polyurethane or epoxy resin for outdoor use. |
| Assembly adhesive | Two-component epoxy for modules. For large pieces: interlocks + structural adhesive. |

SHORTCUT FOR TIGHT DEADLINES

Print with 3 mm layer, apply spray primer without sanding and paint. Layer lines become stone or wood texture. Many art directors prefer this look.

SECTION 05

Checklist to request a Fused Form quote

Have this information ready when requesting your quote. The more precise your description, the more useful the proposal you receive will be.

Your company

- Company or production studio name
- Country and city of operation
- Type of projects you manufacture (theater, film, events...)
- Number of large props produced per year
- Current manufacturing method (EPS, fiberglass, foam, other)

The reference prop

- Approximate dimensions of your typical largest piece
- Current material and estimated cost per piece
- Average manufacturing time for that piece
- Whether you need identical replicas and how many
- Whether the piece is for indoor or outdoor use

About the equipment

- Available workshop space (sq m and ceiling height)
- Available electrical supply (single / three-phase)
- Prior 3D printing experience (if any)
- Estimated date you need the equipment operational
- Whether you are considering financing or installments

Optional but useful

- Photos or visual references of prop type
- Reference 3D file (STL, OBJ or other format)
- Approximate budget available for the investment
- Whether other purchase decision-makers are involved

You have everything you need.

With this information, the Fused Form specialist will prepare a proposal tailored to your operation in less than 24 business hours.

[REQUEST QUOTE NOW](#)

fusedformcorp.com/quotation