

Materials

- **Polylactic Acid (PLA):** \$0.15/gram, available in various colors (opaque & translucent)
 - Brittle compared to other plastics (ABS, PC, Nylon, PP, CPE), good tensile strength, great for lost casting methods to create metal parts, very detailed, a glossier look/feel
 - Suited for: Household tools, toys, educational projects, show objects, prototyping, architectural models, as well as lost casting methods to create metal parts
 - Not suited for: Food contact and in vivo applications. Long term outdoor usage or applications where the printed part is exposed to temperatures higher than 50° C (122° F)
- **Acrylonitrile Butadiene Styrene (ABS):** \$0.15/gram, available in various colors
 - Good mechanical properties, withstands temperatures up to 85° C (185° F), great for strong prototypes or end-use parts
 - Not suited for: Food contact and in vivo applications. Long term UV exposure can negatively affect properties of an ABS print. Applications where the printed part is exposed to temperatures higher than 85 °C
- **Polylactic Acid (Tough PLA):** \$0.15/gram, available in black & white
 - Impact strength similar to ABS (greater than regular PLA), higher stiffness than ABS, less brittle than PLA, matte finish, more reliable for larger prints than ABS, suitable for post-processing with improved machinability than PLA

- **Co-polyester (CPE):** \$0.15/gram, available in light grey
 - Chemical resistance, toughness & dimensional stability
 - Suited for: Visual and functional prototyping, and short-run manufacturing
 - Not suited for: Food contact and in vivo applications. Long term outdoor usage or applications where the printed part is exposed to temperatures higher than 70 °C (158° F)
- **Polypropylene (PP):** \$0.30/gram, available in translucent
 - Durable with high toughness & fatigue resistance, retains shape after torsion, bending, and/or flexing, low friction & smooth surfaces, semi-flexible, chemical resistance to wide range of bases & acids, high electrical resistance, low density & lightweight, recyclable
 - Suited for: Functional prototypes, living hinges, connectors, lab equipment, moldings, stationery folders, packaging, storage boxes, protective covers, and light shades
 - Not suited for: Food contact applications and in vivo applications. Long term UV and/or moisture immersion, and applications where the printed part is exposed to temperatures higher than 105° C (221° F)
- **Thermoplastic Polyurethane (TPU 95A):** \$0.30/gram, available in black, white, red, & blue
 - Flexible (similar to rubber), exceptional wear & tear resistance, high impact strength, good corrosion resistance to many common industrial oils & chemicals

- Suited for: Functional prototyping, grips, guides, hinges, sleeves, snap-fit parts, and protective cases
- Not suited for: Food contact applications and in vivo applications. Long term UV and/or moisture immersion and applications where the printed part is exposed to temperatures higher than 100 °C (212°F)
- **Polycarbonate (PC):** \$0.30/gram, available in black, white, & translucent
 - High toughness, resists temperatures & retains form up to 110°C (230°F), flame retardant characteristics, dimensionally stable
 - Suited for: Lighting, molds, engineering parts, tools, functional prototyping, and short-run manufacturing
 - Not suited for: Food contact and in vivo applications. Applications where the printed part is exposed to temperatures higher than 110 °C (230°F)
- **Nylon:** \$0.30/gram, available in black, white, & translucent
 - Industrial-grade impact & resistant to surface wear, durable, high strength to weight ratio, smooth surface, good corrosion resistance to alkalis & organic chemicals, reduced humidity absorption, prints in dual extrusion with PVA or Breakaway
 - Suited for: Functional prototyping, tooling, and industrial modeling
 - Not suited for: Food contact and in vivo applications. Applications where the printed part is exposed to temperatures higher than 80° C
- **Breakaway:** \$0.30/gram, available in white

- Used with multi-extrusion 3D printing, quick to remove, does not need further post-processing for quality finish, provides good adhesion to ABS, Nylon, PLA, Tough PLA, or CPE
- Not suited for: intricate, internal geometries where the support is not accessible for removal or delicate objects with tiny details