| **Filament** | **Special Properties** | **Uses** | **Strength** | **Density (kg/m3)** | **Flexibility** | **Durability** | **Difficulty to print** | **Print Temperature (°C)** | **Bed Temperature (°C)** | **Printing notes** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [PLA](https://en.wikipedia.org/wiki/Polylactic_acid) | * Easy to print * [Biodegradable](https://en.wikipedia.org/wiki/Biodegradation) | Consumer Products | Medium | 1240[[10]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-10) | Low | Medium | Low | 180 - 230 | No heated bed needed |  |
| [ABS](https://en.wikipedia.org/wiki/Acrylonitrile_butadiene_styrene) | * Durable * Impact resistant | Functional Parts | Medium | 1010[[11]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-11) | Medium | High | Medium | 210 - 250 | 50 - 100 |  |
| [PETG](https://en.wikipedia.org/wiki/Polyethylene_terephthalate#Copolymers) (XT, N‑Vent) | * More flexible than PLA or ABS * Durable | All | Medium | 1270[[12]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-12) | High | High | Medium | 220 - 235 | No heated bed needed |  |
| [Nylon](https://en.wikipedia.org/wiki/Nylon) | * Strong * Flexible * Durable | All | High | 1020[[13]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-13) | High | High | Medium | 220 - 260 | 50 - 100 | Hygroscopic, keep sealed when not in use |
| [TPE](https://en.wikipedia.org/wiki/Thermoplastic_elastomer) | * Extremely flexible * Rubber-like | * Elastic Parts * Wearables | Low |  | High | Medium | High | 225 - 235 | 40 | Print very sLowly |
| [TPU](https://en.wikipedia.org/wiki/Thermoplastic_polyurethane) | * Extremely flexible * Rubber-like | * Elastic Parts * Wearables | Low |  | High | Medium | High | 225 - 235 | No heated bed needed | Print sLowly |
| [Wood](https://en.wikipedia.org/wiki/Wood) | Wood-like finish | Home Decor | Medium | 1400[[14]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-14) | Medium | Medium | Medium | 195 - 220 | No heated bed needed |  |
| [HIPS](https://en.wikipedia.org/wiki/High_impact_polystyrene) | * Dissolvable * Biodegradable | Support structures when using ABS on a dual extrusion printer. | Low | 1040[[15]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-15) | Medium | High | Medium | 210 - 250 | 50 - 100 |  |
| [PVA](https://en.wikipedia.org/wiki/Polyvinyl_alcohol) | * Dissolvable * Water Soluble * Biodegradable * Oil Resistant | Support structures when using PLA or ABS on a dual extrusion printer. | High |  | Low | Medium | Low | 180 - 230 | No heated bed needed | Hygroscopic, keep sealed when not in use |
| [PET](https://en.wikipedia.org/wiki/Polyethylene_terephthalate) (CEP) | * Strong * Flexible * Durable * Recyclable | All | High |  | High | High | Medium | 220 - 250 | No heated bed needed |  |
| [PLA](https://en.wikipedia.org/wiki/Polylactic_acid) [Metal](https://en.wikipedia.org/wiki/Metal) | Metal Finish | [Jewelry](https://en.wikipedia.org/wiki/Jewellery) | Medium |  | Low | High | High | 195 - 220 | No heated bed needed | Use hardened nozzle |
| [PLA](https://en.wikipedia.org/wiki/Polylactic_acid) [Carbon Fiber](https://en.wikipedia.org/wiki/Carbon_fibers) | * Rigid * Stronger Than Pure PLA | Functional Parts | Medium |  | Low | High | Medium | 195 - 220 | No heated bed needed | Use hardened nozzle |
| [Lignin](https://en.wikipedia.org/wiki/Lignin) (bioFila) | * Biodegradable * Stronger than PLA |  | Medium |  | Low | Medium | Low | 190 - 225 | 55 |  |
| [Polycarbonate](https://en.wikipedia.org/wiki/Polycarbonate) | * Very strong * Flexible * Durable * Transparent * Heat Resistant | Functional Parts | High | 1180 – 1200[[16]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-16) | High | High | Medium | 270 - 310 | 90 - 105 | Use enclosed heated chamber at ambient temperature of around 60°C |
| [Conductive](https://en.wikipedia.org/wiki/Electrical_conductor) (usually a graphite-plastic blend) | Conductive | Electronics | Medium |  | Medium | Low | Low | 215 - 230 | No heated bed needed | Use hardened nozzle |
| [Wax](https://en.wikipedia.org/wiki/Wax) (MOLDLAY) | Melts Away | [Lost wax Casting](https://en.wikipedia.org/wiki/Lost-wax_casting) | Low |  | Low | Low | Low | 170 - 180 | No heated bed needed |  |
| PETT (T‑Glase) | * Strong * Flexible * Transparent * Clear | Functional Parts | High |  | High | High | Medium | 235 - 240 | No heated bed needed |  |
| [ASA](https://en.wikipedia.org/wiki/Acrylonitrile_styrene_acrylate) | * Rigid * Durable * Weather Resistant | Outdoor | Medium |  | Low | High | Medium | 240 - 260 | 100 - 120 |  |
| [PP](https://en.wikipedia.org/wiki/Polypropylene) | * Flexible * Chemical Resistance | Flexible Components | Medium | 1040[[17]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-17) | High | Medium | High | 210 - 230 | 120 - 150 |  |
| [POM](https://en.wikipedia.org/wiki/Polyoxymethylene), Acetal | * Strong * Rigid * Low Friction * Resilient | Functional Parts | High |  | Low | Medium | High | 210 - 225 | 130 |  |
| [PMMA](https://en.wikipedia.org/wiki/Poly(methyl_methacrylate)), Acrylic | * Rigid * Durable * Transparent * Clear * Impact Resistant | Light diffusers | Medium |  | Low | High | Medium | 235 - 250 | 100 -120 |  |
| Sandstone (LAYBRICK; styled plastic) | Sandstone Finish | [Architecture](https://en.wikipedia.org/wiki/Architecture) | Low |  | Low | Low | Medium | 165 - 210 | No heated bed needed |  |
| [GLow-In-The-Dark](https://en.wikipedia.org/wiki/Phosphorescence) plastic | [Phosphorescence](https://en.wikipedia.org/wiki/Phosphorescence) | Fun | Medium |  | Medium | Medium | Low | 215 | No heated bed needed | Use hardened nozzle |
| Cleaning | Cleaning | Unclogging of Nozzles | N/A |  | N/A | N/A | Low | 150 - 260 | No heated bed needed |  |
| [PC](https://en.wikipedia.org/wiki/Polycarbonate)-[ABS](https://en.wikipedia.org/wiki/ABS_plastic) | * Rigid * Durable * Impact Resistant * Resilient * Deflecting Heat | Functional Parts | Medium |  | Low | High | High | 260 - 280 | 120 |  |
| Magnetic (PLA blend) | Magnetic | Fun | Medium |  | Medium | Medium | High | 195 - 220 | No heated bed needed |  |
| Color Changing (plastic blend) | [Thermochromism](https://en.wikipedia.org/wiki/Thermochromism) | Fun | Medium |  | Medium | Medium | Low | 215 | No heated bed needed |  |
| nGen (co-polyester) | * Similar to PETG * Heat Resistant * Transparent | All | Medium |  | High | High | Medium | 210 - 240 | 60 |  |
| TPC | * Extremely Flexible * Rubber-Like * Chemical resistant * Heat resistant * UV light resistant | * Elastic Parts * Outdoor | Low |  | High | Medium | High | 210 | 60 - 100 |  |
| PORO-LAY | Partially Water Soluble | Experimental | Low |  | High | Medium | Low | 220 - 235 | No heated bed needed |  |
| FPE | Flexible | Flexible Parts | Low |  | High | High | Medium | 205 - 250 | 75[[18]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-18)[[19]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-19)[[20]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-20)[[21]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-21)[[22]](https://en.wikipedia.org/wiki/3D_printing_filament#cite_note-22) |  |
| [PEI](https://en.wikipedia.org/wiki/Polyetherimide) | * Heat Resistant * Strong * Flame Performance | Functional Parts | High | 1270 | Medium | High | Medium | 340 - 380 | 180 - 200 | Use enclosed heated chamber at 220°C |