Ultimaker

Ultimaker Materials

Optimized print quality
To create the very best print quality, we worked intensively with materials suppliers to develop unique filament formulations. Ultimaker filaments are formulated to ensure the highest print quality and cover a wide range of applications.

Easy setup for the best results
Extensively tested, optimized and pre-configured profiles in our free Ultimaker Cura software, together with 3D printing automation systems like Ultimaker 3's advanced material recognition via scanning of an embedded RFID code in each material spool, results in an easy and efficient workflow for the most reliable, industrial-grade results.

Higher uptime, low maintenance and faster changeovers
The material-matching swappable print cores on the Ultimaker 3 are designed for reliability, repeatability and low maintenance. The print cores are easily swappable for a maximum uptime.

Optimum flexibility for design freedom
Print with a wide range of materials, including Nylon, PLA, ABS, CPE, PVA, CPE+, PC, TPU 95A, PP, Breakaway and Tough PLA. Combine two build materials for dual-color 3D prints, or achieve state-of-the-art complexity with build and water-soluble support material combinations (Nylon/PVA, PLA/PVA, and CPE/PVA). With our integrated ecosystem of reliable hardware, extensively tested materials and cutting-edge software, you are guaranteed astounding results and an optimized 3D printing experience. The open filament system lets you test all kinds of existing or custom-formulated materials to suit your specific requirements.

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Material	Properties	Colors*	Resistant to	Applications
Ultimaker PLA	Easy to print, reliable, good surface quality			Concept models and prototypes that require aesthetic detail, visualization aids, educational projects
Ultimaker ABS	Strong, rigid, durable		Temperatures up to 85° C	Functional prototypes and end-use parts that need to be rigid
Ultimaker CPE	Strong, slightly flexible, chemically resistant		Chemicals, Temperatures up to 70° C	Functional prototypes and end-use parts that need to be chemically resistant and slightly flexible
Ultimaker CPE+	All CPE properties, but ten times more impact strength, higher temperature resistance, and lower tensile strength		Chemicals, Temperatures up to 100° C	Functional prototypes that need to be chemically resistant, have more impact strength, and withstand high temperature
Ultimaker PVA	Water soluble support material			Complex models that require supports for large overhangs, deep internal cavities, and intricate geometries
Ultimaker PC	Strong, tough, retains shape under high temps		Temperatures up to 110° C, flames and fire	Molds, tools, functional prototypes, and parts for short-run manufacturing that need to retain shape near high temperatures or flames
Ultimaker Nylon	Durable, slightly flexible, abrasion resistant		Abrasion, mechanical stress, impact, corrosion from alkalis and organic chemicals	Tools, functional prototypes, and end-use parts that require abrasion resistance and flexibility such as gears or fasteners
Ultimaker TPU 95A	Flexible, versatile, high impact strength		Impact, corrosion from industry oils and chemicals, wear and tear	Wide array of manufacturing projects that demand the qualities of both rubber and plastic
Ultimaker PP	Durable, fatigue resistant, translucent, with low friction, low density, excellent layer bonding, and smooth surfaces		Fatigue, wide range of chemicals, temperatures up to 105° C, electricity, moisture	Living hinges, connectors, lab equipment, packaging, protective covers, functional prototypes, light shades
Ultimaker Breakaway	Quick to remove support material, does not need further post processing, leaves quality surface finish		Moisture, environmental conditions	Models where support is easily accessible and needs to be quickly removed while keeping the dimensional accuracy of the print with a quality surface finish
Ultimaker Tough PLA	Similar strength and stiffness as ABS, as easy to print as PLA		Delamination and warping	Large functional prototypes for tooling and as manufacturing aids

*We strive to make the colors shown as accurate as possible. However, color indicators should be used as a guide only - please see website for best color depiction or contact your local reseller.

ULTIMAKER PLA: FAST, SAFE, AND RELIABLE 3D PRINTING
Ultimaker PLA (polylactic acid) is a versatile choice for creating consistently smooth and detailed prints. Coupled with Cura's extensively tested material profile settings, PLA combines detailed surface quality with reliable performance. Our PLA is made from organic and renewable sources. It's safe, easy to print with and it serves a wide range of applications for both novice and advanced users.

ULTIMAKER ABS: TOUGH AND DURABLE
In cooperation with our supplier, Ultimaker ABS (acrylonitrile butadiene styrene) has been specifically designed for 3D printing with low warping in order to create exceptionally strong mechanical parts. It's impact resistant, dimensionally stable and handles temperatures up to 85 °C.

ULTIMAKER CPE FAMILY: CHEMICAL RESISTANT AND TOUGH
Featuring chemical resistance and toughness, the Ultimaker CPE (co-polyester) family of filaments is a good choice for functional prototypes and modeling. CPE+ provides the additional benefit of increased temperature and impact resistance. Tough and dimensionally stable, Ultimaker CPE+ handles temperatures up to 100 °C.

ULTIMAKER PVA: WATER SOLUBLE
As a water soluble support material, Ultimaker PVA (polyvinyl alcohol) empowers engineers and designers to create highly detailed surfaces and complex moving mechanical parts in just one run. Coupled with the right build materials, our PVA opens up a whole new world of opportunities for intricate designs and versatile applications.

ULTIMAKER PC: STRONG, TOUGH AND TEMPERATURE RESISTANT
The Ultimaker PC (polycarbonate) filament has high strength, toughness, and heat resistant properties. It's a great choice for a variety of applications, ranging from mechanically strong outdoor fixtures to delicate lampshade designs. Ultimaker PC offers great print quality, heat resistance up to 110 °C, mechanical strength and toughness.

ULTIMAKER NYLON: ABRASION-RESISTANT AND DURABLE
Ultimaker Nylon (polyamide) is formulated for an enhanced 3D printing experience, serving numerous applications where durability, impact resistance, flexibility, and strength are required. Ultimaker Nylon is strong, abrasion-resistant, and engineered for low moisture sensitivity, making it one of the most reliable filaments for your manufacturing needs.

ULTIMAKER TPU 95A: WEAR AND TEAR RESISTANT
Ultimaker TPU 95A (thermoplastic polyurethane) is an easy and fast to print filament with a nice balance of flexibility, wear and tear resistance, as well as a good resistance to many industrial chemicals and oils. Our TPU features a Shore-A hardness of 95 and an elongation of up to 580% at break. It's suitable for applications that require slight flexibility, wear and tear, and chemical resistance. When combined with Cura's material profiles, even complex mechanical parts, tools, and fixtures are printed with ease.

ULTIMAKER PP: FATIGUE AND CHEMICAL-RESISTANT
Ultimaker PP (polypropylene) offers excellent temperature and chemical-resistance. Its toughness, low density, and exceptional fatigue resistance make it a perfect choice for creating lightweight and durable end-use parts.

ULTIMAKER BREAKAWAY: QUICK TO REMOVE
Ultimaker Breakaway is a support material for multi-extrusion 3D printing. Breakaway support is quick to remove and does not need further post-processing for a quality finish on your 3D print. Designed for a hassle-free 3D printing experience, Breakaway provides good adhesion to ABS, Nylon, PLA, CPE, or CPE+.

ULTIMAKER TOUGH PLA: TOUGH, SAFE AND EASY TO USE
Ultimaker Tough PLA is a technical filament with toughness that's comparable to ABS. Offering the same ease of use as regular PLA, our Tough PLA is ideal for reliably printing technical models at larger sizes.