



HIGHEST RATED FILAMENT ON AMAZON
60-DAY MONEY BACK GUARANTEE

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Description:

A strong and durable general purpose plastic that is well suited for environments that require greater heat-resistance than that of PLA or PLA+.

Applications:

End-use parts, housings, toys, rapid-prototyping, 3D printer parts, etc.
rigid.ink produces durable and tough objects with a pleasing surface finish.
Good for making parts that are exposed to moderate 'everyday-living' temperatures (such as those that might be experienced if an object were to be left in a car on a hot day).

Recommended Print Settings:

Printing Temps 1.75mm	230-245°C
Printing Temps 2.85mm	235-250°C
Heated Bed Temp	90-95°C
Cooling Fans	Off (can be very low for intricate parts ≤10%)
Ideal Build Volume	Fully enclosed. Volume heated to 90°C if possible
Extrusion Multiplier	x1.0 (100%)
Retraction (direct drive)	Try 0.6mm as a starting point at 20-30mm/s
Retraction (bowden feed)	Varies per printer, as above, but try 2mm as a starting point
Print Speed Advisory	Print very small objects at a slow speed (suggested minimum layer printing duration is 15s).
Print Surface Advisory	Due to the propensity of this plastic to shrink and warp, good first layer adhesion is essential.
Print Layer Advisory	Print layers as thin as possible (<0.2mm/200µm) so as to keep interlayer distortional stresses to a minimum.

General Advice:

Start at the low end of the temperature range and increase if needed for faster print speeds.

Hotter print temperatures give stronger objects by increasing layer bonding, but at the expense of increased object warping.

Keep draughts to a minimum. Consider placing printers that have an unenclosed build volume inside a closed box to help retain heat in the printed object during printing.

Good ventilation of area/room where ABS is being printed is essential. The fumes and particulates emitted during the printing process may be hazardous to health (see the "General Safety" section for more information).

Material Properties:

Physical Properties ⁽¹⁾	Value
Density	1.04g/cm ³
Glass Transition Temperature	90-102°C
Melting Temperature	210-240°C
Heat Deflection Temperature ⁽²⁾	90°C
Heat Deflection Temperature ⁽³⁾	86°C
Vicat Softening Point	94°C
Tensile Strength, Yield	50.9 MPa / 7396 psi

(1) NOT to be construed as specifications

(2) @0.5MPa

(3) @01.8MPa

Strengths:

Versatile low-filler thermoplastic that's easy to print with.

Ideal for general modelling, prototyping, and production uses.

Produces tough and durable objects.

Compatible with most printers that are >230°C-rated that possess a heated bed.

Can be acetone-vapour polished, as well as sanded and smoothed to give various surface finishes.

Parts can be glued together with solvent adhesives to produce mechanically strong assemblies.

Good temperature resilience – resistant to deformation if left in a hot car (over 50°C).

Resistant to most aqueous acids and alkalis.

Weaknesses:

Prone to warping during the printing process if not printed on a heated bed in an enclosed, temperature-controlled print chamber.

Poor resistance to esters, ketones, and some halogenated solvents.

Produces more particulates and unpleasant fumes during printing than most other filament plastics.

Degraded by prolonged exposure strong ultraviolet light (e.g. sunlight).

Other Info:

In the unlikely event of the filament getting damp, a full reel can be dried at 60-70°C for 8-12 hours in a temperature-controlled air dryer.

Print Surface Materials:

Adheres well to most bed surfaces including PEI, BuildTak, blue painters' tape, etc.

Bed surfaces must be kept clean with the appropriate cleaning fluid/solvent in order to obtain reliable adhesion.

A heated bed is essential in order to control warping.

Other methods of securing a print include 3DLAC, Extra-Hold vinyl-based hairspray, glue sticks, ABS slurry, and so on

General Safety:

As with all filaments, only print in an area with good ventilation, away from pets, and avoid breathing in any fumes or particles that will be released during the printing process.

Active fume extraction and filtering is highly recommended.

Always wear eye protection around 3D printers and their materials, especially while in use.

It is always good practice to wear facemasks as a precautionary measure when 3D printing.

Keep away from food, and wash hands after use.

Do not touch the molten plastic - It will cause severe burns if it comes into contact with bare skin.

If bodily contact does occur, irrigate the affected area with copious amounts of cold water.

Do not attempt to remove the hardened plastic.

Seek medical attention.

Please note that the information given in this Technical Data Sheet, including, but not limited to, data, statements and typical values, are given in good faith. They are provided as an aid for material selection purposes only. The values and information presented on this sheet are typical values and should not be interpreted as being absolute or precise specifications. Colour pigments may induce variance in printing settings between filament colours. All properties except Melt Flow Rate are measured on injection-moulded specimens.