

Acrylnitrilbutadienstyrol (ABS)

General

Acrylonitrile-butadiene-styrene is a copolymer in which, among other things, butadiene is grafted onto the molecular chains. This makes the ABS much more impact-resistant than before the modification. The proportions are generally as follows: 15-35% acrylonitrile, 5-30% butadiene and 40-60% styrene. ABS is mainly used for the production of household and consumer goods.

We currently have ABS filament in the 1.75mm diameter variant in our range.

In order to be able to print ABS filament, you must first make sure that your printer is suitable for it. Cooling is not necessary, but can definitely bring advantages. Compared to PLA, ABS filament is more stable and has a higher heat tolerance. In return, however, ABS filament tends to warp. While the ABS filament is melting, an odor develops. Make sure your printer is in a well-ventilated room and avoid breathing in these fumes. Make sure that there are no people who are sensitive to chemicals in this room react, or stay with children or pets for a long time.

advantageous

- Stable
- Heat resistant up to 89 ° C.
- Resilient
- High scratch resistance
- High surface hardness
- Uses 20% less material than PLA because it has a lower density

disadvantageous

- More complicated than PLA to print
- Susceptible to many solvents
- Evaporates when heated
- Tends to warp (warp effect)
- Needs a warm room or a closed printing chamber

Processing data

Printing temperature

210-260 °C

Heated bed temperature

80-110 °C

Drying temperature

80°C

Drying time

2-4h

Technical specifications

Shrinkage (ISO 294-4, 2577)	0.4-0.7	%
MFR (ASTM D1238)	1.6	g/10min
Yield stress (ASTM D638)	47	MPa
Elongation at yield (ASTM D638)	3.5	%
Elongation at break (ASTM D638)	25	%
Tensile modulus (ASTM D790)	2700	MPa
Heat deflection temperature 0.45 MPa (ASTM D648)	95	°C
Vicat softening temperature A (ASTM D1525)	105	°C
Thermal conductivity 23°C	0.18	W/(K*m)
Flammability (UL 94)	HB	
Density (ASTM D792)	1.05	g/cm ³