

ABS+ Filament Technical Data Sheet (TDS)

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1. Background

Ordinary ABS has excellent mechanical properties, but it is difficult to print, has poor adhesion between layers, tends to warp when printed and has an unpleasant smell. To make ABS more friendly to print, we upgrade ABS to ABS+, easy to print, slight smell and it has slightly effect on its mechanical properties.

2. Main Ingredients

Modified ABS, colour powder

3. Features

ABS+ Filament use a special modification method, which greatly improves the ability of ABS material to stick to the hotbed without affecting the heat resistance and excellent mechanical properties of ABS material, and has a strong bonding ability between layers.

4. Application

For mechanical parts, mould, toys, automotive parts, electronic appliances.

5. Technical Specification

- Filament Diameter: 1.75mm
- Tolerance: ± 0.03 mm
- Printing Temperature: 220 - 270°C
- Heated Bed Temperature: 80 - 110°C
- Printing Speed: 40 - 100 mm/s

6. Shortcomings

For high printing temperatures, it is best to print in an enclosed or add a thermal cover to the printer. ABS+ is poorly cooled and it is recommended that the cooling fan be switched on when printing models with overhang angles.

7. Relevant Parameters of Recommended Machine Types

Relevant Parameters of Recommended Machine Types		
Type	Extruder Type/Heated Bed Type	Parameter
Crealty Ender3	Bowden/Flexible Bed Sticker	Printing Temperature: 230-250°C Heated Bed Temperature: 80-100°C Printing Speed: 30 – 60mm/s Retracting Length: 2-4mm Retracting Speed: 60-100mm/s
Crealty CR-10	Bowden/Glass Bed	Printing Temperature: 230-250°C Heated Bed Temperature: 80-100°C Printing Speed: 30 – 60mm/s Retracting Length: 2-5mm Retracting Speed: 80-110mm/s
Anycubic i3mega	Bowden/ Microporous Coating Glass Bed	Printing Temperature: 230-250°C Heated Bed Temperature: 80-100°C Printing Speed: 30~80mm/s

		Retracting Length:2-4mm Retracting Speed: 70-100mm/s
Prusa i3	Direct Drive Extruder/PEI Bed Sticker	Printing Temperature: 230-260°C Heated Bed Temperature:80-110°C Printing Speed: 30~100mm/s Retracting Length: 0.8mm Retracting Speed:30-40mm/s
Eryone Thinker S	Bowden/PEI Bed Sticker	Printing Temperature: 230-250°C Heated Bed Temperature:80-100°C Printing Speed: 30~60mm/s Retracting Length:4mm Retracting Speed: 90-110mm/s
Eryone Thinker SE	Bowden/Glass Bed	Printing Temperature: 230-250°C Heated Bed Temperature:80-100°C Printing Speed: 30~70mm/s Retracting Length: 4mm Retracting Speed: 80-110mm/s
Eryone Thinker ER-20	Bowden/Silk-Screen Glass Bed	Printing Temperature: 230-250°C Heated Bed Temperature:80-100°C Printing Speed: 30-100mm/s Retracting Length:2-5mm Retracting Speed: 80-110mm/s

8. Basic Parameters

ABS+ Basic Parameter		
physical properties:	Typical Value:	Method:
Density(g/cm ³)	1.05g/cm ³	GB/T 1033-86
Melt Flow Index(g/10min)	12-17	ASTM D-1238 (190°C/2.16Kg)
Tensile Strength(MPa)	≥37	ASTM D-638
Elongation at Break(%)	≥20	ASTM D-638
Flexural Strength(MPa)	≥55	ASTM D-790
Flexural Modulus(MPa)	≥2000	ASTM D-790
IZOD Impact Strength(kJ/m ²)	≥30	ASTM D-256
Heat Distortion Temperature (°C, 0.45MP)	75	GB/T 1634.2-2004

9. FAQ

Q:How to solve prints warp?

A:In order to prevent warping when printing, be sure to level the hot bed plate before printing, you can fine-tune the nozzle and the hotbed plate distance (print the first layer out of the silk as evenly as possible, the first layer of thickness is basically the same), printing can turn off the cooling fan, if not the use of enclosed printer, it is recommended to add insulation cover insulation.

Q: Why my filament tangles? How can I solve it?

A: The tangle of filament isn't caused by the disordered or the imperfect winding. According to the production technology of filament, the filament winds back and forth (from left to right and then from right to left). Normally, there is no overline tangle. A common cause of tangle is that the filament end is not fixed to the holes of spool. Overline tangle or the changed winding direction make filament tangle. So customers need to fix the filament end to the proper holes of the spool.

Q:The nozzle is clogged by ABS+, and how can I solve it?

A: Inconstant filament diameter, the lower nozzle temperature and frequent replacement with different kinds of filaments will lead to this problem. So, before you get started, clean the nozzle and turn up the temperature to a proper value.

Q: My prints have web-like strings (stringing) issues. How can I troubleshoot it?

A: Too high temperature makes the ABS+ filament melt and flow so fast. Please turn the temperature down to a proper value.the retracting parameters are improper, so adjust the retracting length and speed.

Q:There are too much melted filament around the nozzle. What should I do?

A: This problem can be attributed to over-high temperature, low printing speed, and in the slice software, the nozzle diameter doesn't match with the extrusion output.

Q: The ABS+ filament was perfect when I opened the package. After several times of intermittent printing, my ABS+ filament snaps by accident during printing. Why?

A: Normally, the ABS+filament in the printing process will not snap by themselves. However, after being affected by moisture, the degradable material ABS+ will be more brittle and easier to break, so you should pay attention to dampproof.

Q: The surface of my print isn't very smooth, and the extruded filament has inconstant diameters. Why?

A: The printing temperature is too high or too low. The temperature doesn't match well with the printing speed. You need to adjust the printing speed or temperature.

Q: Why my ABS+objects don't stick to the heated bed? How do I solve?

A:Nozzle and hot bed spacing is too large, not leveled, if leveled, the print temperature is too low or the hot bed temperature is too low will also not stick to the hot bed, it is recommended to increase the print temperature and hot bed temperature, or add a layer of "draft" or "Skirt" before printing.

Q: Why poor quality print drape angle

A:The cooling of ABS+ is slightly worse. You can turn on a fan to improve the printing effect, or reduce the overhang angle structure in the model or try to reduce the speed to print.