

Technical data sheet ABS

Ultimaker

Chemical Name	Acrylonitrile butadiene styrene
Description	Used by an array of industries worldwide, ABS is known for its exceptional mechanical properties. Our ABS is specifically formulated to minimize warping and ensure consistent interlayer adhesion.
Key features	Excellent mechanical properties and interlayer adhesion (especially when using the front door add-on), nice aesthetics, minimal warping and reliable bed adhesion.
Applications	Visual and functional prototyping and short run manufacturing.
Non suitable for	Food contact and in-vivo applications. Long term UV exposure can negatively affect properties of an ABS print. Applications where the printed part is exposed to temperatures higher than 85 °C.

Filament specifications

	<u>Value</u>	<u>Method</u>
Diameter	2.85±0.10 mm	-
Max roundness deviation	0.10 mm	-
Net filament weight	750 g	-

Color information

<u>Color</u>	<u>Color code</u>
ABS Black	RAL 9017
ABS White	RAL 9003
ABS Red	RAL 3020
ABS Blue	RAL 5002
ABS Silver	RAL 9006
ABS Pearl Gold	RAL 1036
ABS Green	RAL 6018
ABS Orange	RAL 2008
ABS Yellow	RAL 1023
ABS Gray	RAL 7011

Mechanical properties (*)

Injection molding

3D printing

	Typical value	Test method	Typical value	Test method
Tensile modulus	2030 MPa	ISO 527 (1 mm/min)	1681.5 MPa	ISO 527 (1 mm/min)
Tensile stress at yield	43.6 MPa	ISO 527 (50 mm/min)	39.0 MPa	ISO 527 (50 mm/min)
Tensile stress at break	-	-	33.9 MPa	ISO 527 (50 mm/min)
Elongation at yield	4.8 %	ISO 527 (50 mm/min)	3.5 %	ISO 527 (50 mm/min)
Elongation at break	34 %	ISO 527 (50 mm/min)	4.8 %	ISO 527 (50 mm/min)
Flexural strength	-	-	70.5 MPa	ISO 178
Flexural modulus	-	-	2070.0 MPa	ISO 178
Izod impact strength, notched (at 23°C)	-	-	10.5 kJ/m ²	ISO 180
Charpy impact strength (at 23°C)	58 kJ/m ²	ISO 179	-	-
Hardness	97 (Shore A)	-	-	-

Thermal properties

Typical value

Test method

Melt mass-flow rate (MFR)	41 g/10 min	ISO 1133 (260 °C, 5 kg)
Heat deflection (HDT) at 0.455 MPa	-	-
Heat deflection (HDT) at 1.82 MPa	-	-
Glass transition	97 °C	ISO 306
Coefficient of thermal expansion (flow)	-	-
Coefficient of thermal expansion (xflow)	-	-
Melting temperature	225-245 °C	ISO 294
Thermal shrinkage	-	-

Other properties

Typical value

Test method

Specific gravity	1.10	ISO 1183
Flame classification	-	-

(*) See notes.

Notes

Properties reported here are average of a typical batch. The 3D printed test specimens were printed in the XY plane, using the normal quality profile in Cura 2.1, an UM2+, a 0.4 mm nozzle, 90% infill, 250 °C nozzle temperature and 80 °C build plate temperature. The values are the average of 5 white and 5 black tensile bars. Ultimaker is constantly working on extending the TDS data.

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Version

Version 3.006

Date

28/02/2017

Ultimaker

Item Code	Filament	Colour
1621	ABS - M2560 Black 750 - 206127	Black
1624	ABS - M2560 Blue 750 - 206127	Blue
1630	ABS - M2560 Grey 750 - 206127	Grey
1627	ABS - M2560 Green 750 - 206127	Green
1628	ABS - M2560 Orange 750 - 206127	Orange
1626	ABS - M2560 Pearl Gold 750 - 206127	Pearl Gold
1623	ABS - M2560 Red 750 - 206127	Red
1625	ABS - M2560 Silver 750 - 206127	Silver
1622	ABS - M2560 White 750 - 206127	White
1629	ABS - M2560 Yellow 750 - 206127	Yellow
1631	CPE - M0188 Black 750 - 201273	Black
1636	CPE - M0188 Blue 750 - 201273	Blue
1634	CPE - M0188 Dark Grey 750 - 201273	Dark Grey
1638	CPE - M0188 Green 750 - 201273	Green
1633	CPE - M0188 Light Grey 750 - 201273	Light Grey
1635	CPE - M0188 Red 750 - 201273	Red
1639	CPE - M0188 Transparent 750 - 201273	Transparent
1632	CPE - M0188 White 750 - 201273	White
1637	CPE - M0188 Yellow 750 - 201273	Yellow
1646	PAX - M2085 Black 750 215158	Black
1647	PAX - M2085 Transparent 750 - 215158	Transparent
1609	PLA - M0751 Black 750 - 211399	Black
1616	PLA - M0751 Blue 750 - 211399	Blue
1608	PLA - M0751 Green 750 - 211399	Green
1620	PLA - M0751 Pearl White 750 - 211399	Pearl White
1618	PLA - M0751 Red 750 - 211399	Red
1612	PLA - M0751 Silver Metallic 750 - 211399	Silver Metallic
1614	PLA - M0751 Transparent 750 - 211399	Transparent
1613	PLA - M0751 White 750 - 211399	White
1619	PLA - M0751 Yellow 750 - 211399	Yellow
9023	PLA - M0751 Magenta 750 - 211399	Magenta
9021	PLA - M0751 Magenta 750 - 211399	Orange
9732	PVA - M0952 Natural 350 - 206127	Natural
9731	PVA - M0952 Natural 750 - 206127	Natural

9715	PCA - Transparent 750 - 212674	Transparent
9716	PCA - Black 750 - 212674	Black
9717	PCA - White 750 - 212674	White
9720	TPU - White 750 - 215194	White
9725	CPE-TR - Transparent 700 - 210592	Transparent
9726	CPE-TR - Black 700 - 210592	Black
9727	CPE-TR White 700 - 210592	White