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ABS

Basic info

KINGROON ABS is a high-performance 3D printing material known for its excellent heat resistance, UV resistance, and water resistance. While traditional ABS is prone to warping and produces noticeable odor during printing, KINGROON ABS is specially formulated to reduce warping and cracking while maintaining exceptional impact strength. Its improved flow behavior also makes it highly suitable for high-speed printing, delivering stable, reliable, and durable results for a wide range of applications.

Specifications

Subjects	Data
Diameter	1.75mm
Net Filaments Weight	1kg
Spool Material	PC + ABS (Temperature resistance 90 °C)
Spool Size	Diameter: 200 mm; Height: 67 mm

Recommended Printing Settings

Subjects	Data
Drying Settings before Printing	Blast Drying Oven: 80 °C, 8 h
Printing and Storage Humidity	< 20% RH (Sealed, with desiccant)
Nozzle Size	0.2, 0.4, 0.6, 0.8 mm
Nozzle Temperature	240 - 270 °C
Bed Type	Engineering Plate, High Temperature Plate or Textured PEI Plate
Bed Surface Preparation	Glue
Bed Temperature	80 - 100 °C
Cooling Fan	0 - 80%
Printing Speed	< 300 mm/s
Retraction Length	0.8 - 1.4 mm
Retraction Speed	20 - 40 mm/s
Chamber Temperature	45 - 60 °C
Max Overhang Angle	70 °
Max Bridging Length	40 mm
Support Material	Turn on

Properties

KINGROON ABS Material Performance Testing

KINGROON has thoroughly tested the performance of ABS across multiple aspects, including its physical, mechanical, and chemical properties.

Physical Properties		
Subjects	**Testing Methods**	**Data**
Density	ISO 1183	1.05 g/cm³
Melt Index	250 °C, 2.16 kg	34.2 ± 3.8 g/10 min
Melting Temperature	DSC, 10 °C/min	200 °C
Glass Transition Temperature	DSC, 10 °C/min	N/A
Crystallization Temperature	DSC, 10 °C/min	N/A
Vicar Softening Temperature	ISO 306, GB/T 1633	94 °C
Heat Deflection Temperature	ISO 75 1.8 Mpa	84 °C
Heat Deflection Temperature	ISO 75 0.45 Mpa	87 °C
Saturated Water Absorption Rate	25 °C, 55% RH	0.0065

Mechanical Properties		
Subjects	**Testing Methods**	**Data**
Young's Modulus(X-Y)	ISO 527, GB/T 1040	2200 ± 190 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	1960 ± 110 MPA
Tensile Strength (X-Y)	ISO 527, GB/T 1040	33 ± 3 Mpa
Tensile Strength (Z)	ISO 527, GB/T 1040	28 ± 2 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	10.5 ± 1.0 %
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	4.7 ± 0.8 %
Bending Modulus (X-Y)	ISO 178, GB/T 9341	1880 ± 110 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	1590 ± 100 MPa
Bending Strength (X-Y)	ISO 178, GB/T 9341	62 ± 4 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	39 ± 4 MPa
Impact Strength (X-Y)	ISO 179, GB/T 1043	39.3 ± 3.6 kJ/m²; 21.5 ± 2.2 kJ/m² (notched)
Impact Strength (Z)	ISO 179, GB/T 1043	7.4 ± 1.2 kJ/m²

Other Physical and Chemical Properties

Subjects	Data
Odor	Odorless
Composition	ABS
Skin Hazards	No hazard
Chemical Stability	Stable under normalstorage and handling conditions
Solubility	Insoluble in water
Resistance to Acid	Resistant

Resistance to Alkali	Resistant
Resistance to Organic Solvent	Not resistant to some organic solvents
Resistance to Oil and Grease	Not resistant to some kinds of oil and grease
Flammability	Flammable
Combustion Products	Water, carbon oxides, nitrogen oxides
Odor of Combustion Products	Pungent odor

Specimen Test

Specimen Printing Conditions	
Subjects	**Data**
Nozzle Temperature	260 °C
Bed Temperature	80 °C
Printing Speed	200 mm/s
Infill Density	100%

All KINGROON ABS test specimens were annealed and dried at 80 °C for 12 hours prior to testing. For printed models, the recommended annealing conditions are 80–90 °C for 6–12 hours. The actual effect of annealing depends on temperature, duration, and the characteristics of the model, including its size, structure, infill, and other printing settings; some prints may warp or deform during this process. When drying filament or annealing prints, it is essential to use an oven with sufficient internal volume and even temperature distribution, such as a forced-air (blast drying) oven, and to keep materials away from direct heat sources. Microwave ovens and kitchen ovens are not suitable, as uneven heating may damage both the filament and the printed models.