



Filazoo Filament

Technical Data Sheet V1.0



ASA

Acrylonitrile Styrene Acrylate — UV and weather resistant engineering filament

DOCUMENT NO.	REVISION	ISSUE DATE	DIAMETER	NET WEIGHT
FZ-TDS-ASA-001	V1.0	28/08/26	1.75 mm	1 kg

1 Description

Filazoo ASA is an acrylonitrile-styrene-acrylate filament developed for parts that must survive sunlight, weather and heat. Compared with ABS it retains colour and surface finish far better under prolonged UV exposure while offering comparable stiffness and heat resistance. With a heat deflection temperature of approximately 94 °C at 0.45 MPa and a glass transition temperature of approximately 105 °C, it suits parts that sit outdoors or inside a warm enclosure where PLA and PETG would soften.

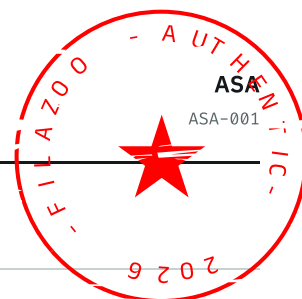
Typical applications — outdoor brackets and mounts, garden and plant signage, mailboxes, wind vanes and weather-exposed housings, automotive interior trim, electronics enclosures, and functional prototypes requiring long-term dimensional stability.

Processing summary — ASA is warp-sensitive. An enclosed chamber is recommended, part cooling should be kept to a minimum, and the filament should be stored dry. A hardened, wear-resistant nozzle is recommended for consistent flow over the life of a spool.

2 Product Specification

Table 1 — Filament and packaging specification

PARAMETER	UNIT	VALUE
Filament diameter	mm	1.75
Diameter tolerance	mm	± 0.02
Net filament weight	kg	1
Spool material	—	PC + ABS (heat resistance 90 °C)
Spool dimensions (ø × H)	mm	ø 200 × 67 mm
Colour range	—	Black, White + seasonal colours



3 Recommended Printing Parameters

Table 2 — Recommended starting parameters

PARAMETER	UNIT	VALUE
Drying before printing	°C / h	80 °C for 8 h
Printing and storage humidity	—	Dry storage; sealed with desiccant
Nozzle size	mm	≥ 0.4
Nozzle type	—	Hardened / wear-resistant steel
Nozzle temperature	°C	240 – 260
Build plate type	—	PEI or glass with adhesive
Bed surface preparation	—	Clean; adhesive recommended
Bed temperature	°C	90 – 100
Part cooling fan	—	Off to low – minimise for ASA
Printing speed	mm/s	40 – 150
Enclosed chamber	—	Recommended – reduces warping
Chamber temperature	°C	45 – 60
Retraction length / speed	mm / mm·s ⁻¹	0.8 – 1.4 mm / 20 – 40 mm·s ⁻¹
Max overhang angle	°	~ 70
Max bridging length	mm	~ 40

The Filazoo ASA product listing publishes a verified starting profile of 255 °C nozzle, 100 °C bed and cooling disabled — a specific operating point within the

4 Material Properties

Values are typical results measured on standard printed specimens and are intended for design reference and comparison. They are not guaranteed minima.

4.1 Physical and thermal properties

Table 3 — Physical and thermal properties

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Density	ISO 1183	g/cm ³	~ 1.07
Melt flow rate (MFR)	210 °C, 2.16 kg	g/10 min	~ 2.0 ± 0.4
Melting temperature	DSC	°C	~ 230
Glass transition temperature	DSC	°C	~ 105
Vicat softening temperature	ISO 306	°C	~ 100
Heat deflection temperature	ISO 75, 0.45 MPa	°C	~ 94
Heat deflection temperature	ISO 75, 1.8 MPa	°C	~ 88
Saturated water absorption	25 °C, 55 % RH	%	~ 0.3



4.2 Mechanical properties

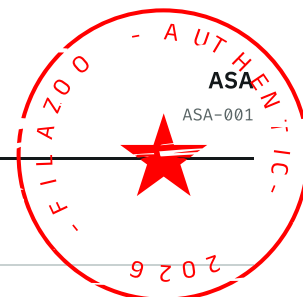
Table 4 — Mechanical properties

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Young's modulus (X–Y)	ISO 527 / GB/T 1040	MPa	~ 2100 ± 200
Young's modulus (Z)	ISO 527 / GB/T 1040	MPa	~ 1500 ± 180
Tensile strength (X–Y)	ISO 527 / GB/T 1040	MPa	~ 33 ± 2
Tensile strength (Z)	ISO 527 / GB/T 1040	MPa	~ 30 ± 3
Elongation at break (X–Y)	ISO 527 / GB/T 1040	%	~ 8.5
Elongation at break (Z)	ISO 527 / GB/T 1040	%	~ 4.1
Flexural modulus	ISO 178 / GB/T 9341	MPa	~ 2000 ± 120
Flexural strength	ISO 178 / GB/T 9341	MPa	~ 70 ± 4
Impact strength, notched	ISO 179 / GB/T 1043	kJ/m ²	~ 5.5
Impact strength, unnotched	ISO 179 / GB/T 1043	kJ/m ²	~ 12

4.3 Chemical and physical characteristics

Table 5 — General characteristics of the ASA polymer

PARAMETER	VALUE
Composition	Acrylonitrile – styrene – acrylate
Odour	Slight odour when printing; low relative to ABS
Skin hazard	No hazard in solid filament form
Chemical stability	Stable under normal storage and handling conditions
Solubility	Insoluble in water
UV and weathering resistance	Resistant – the principal advantage over ABS
Acid resistance	Resistant
Alkali resistance	Resistant
Organic solvent resistance	Not resistant to some organic solvents
Oil and grease resistance	Not resistant to some oils and greases
Flammability	Flammable
Combustion products	Water, carbon oxides, nitrogen oxides



5 Test Conditions

5.1 Specimen printing conditions

Table 6 — Conditions used to produce test specimens

PARAMETER	UNIT	VALUE
Nozzle temperature	°C	225
Bed temperature	°C	85
Printing speed	mm/s	100
Infill density	%	100
Layer height	mm	0.2
Specimen conditioning / annealing	°C / h	80 – 90 °C for 6 – 12 h (annealing)

5.2 Specimen geometry

Test specimens follow the geometry defined by the referenced standards. All dimensions in millimetres.

Figure 1 — Tensile specimen

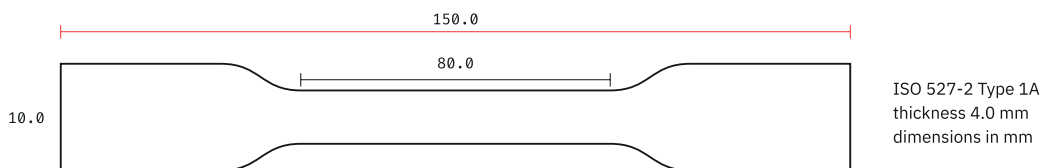


Figure 2 — Flexural specimen

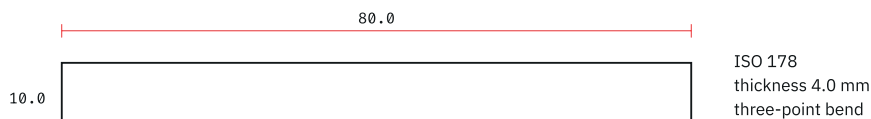
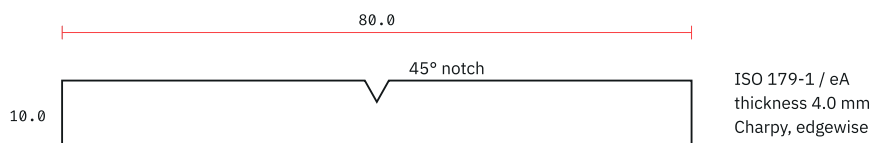


Figure 3 — Impact specimen



6 Disclaimer

The performance values in this document are typical values obtained from standard printed specimens. They are provided for design reference and comparison only and do not constitute a specification or a warranty of performance. Actual printed part performance depends on many further factors, including the printer, hotend and nozzle, slicer settings, part geometry, wall count and infill, build orientation, and ambient conditions.

Users are responsible for the legality, safety and suitability of anything they print. Filazoo accepts no responsibility for the use of its materials in any particular application, or for any damage arising in the course of using them.