

	INTEGRATED MANAGEMENT SYSTEM PORİMA ABS FR TECHNICAL DATA SHEET	Document Code	TD-ABSFR-175-EN
		Publication Date	10.09.2026
		Revision No	00
		Revision Date	-
		Pge	1 / 6

1. GENERAL INFORMATION

Porima ABS FR (Flame Retardant) is an engineering-grade thermoplastic that retains high mechanical strength, impact resistance and processability while being given flame-retardant and non-flame-propagating behaviour through dedicated additives. Thanks to its heat resistance it is widely preferred for functional parts and engineering applications, electrical components, television and motor assemblies. Its good mechanical performance and processability offer a broad field of use, from prototyping to end-use parts.

Optimised for high-speed printing, Porima ABS FR supports printing speeds of 80–250 mm/s under suitable printing conditions. Its improved formulation delivers high impact strength, strong interlayer adhesion (Z-axis strength), low warping tendency and good surface appearance, enabling reliable and durable prints.

2. TECHNICAL SPECIFICATIONS

PROPERTY	VALUE
Diameter	1.75 mm ± 0.05 mm (± 2.86 %)
Net Filament Weight	1 kg
Spool Material	ABS (heat resistance 70 °C)
Spool Dimensions	Diameter: 200 mm; Height: 67 mm

3. RECOMMENDED PRINT SETTINGS

PROPERTY	VALUE
Pre-print Drying	Drying oven: 50 °C, 8 h
Drying Equipment	Printers with a built-in filament drying function, or multi-colour systems equipped with a drying function, may be used. Where such a printer is not available, drying may be carried out in a drying oven with a turbo-fan (forced-air) function.
Printing and Storage Humidity	< 20 % RH (Nem alıcı ile kapalı)
Nozzle Diameter	0.2 / 0.4 / 0.6 / 0.8 mm
Nozzle Temperature	250 – 280 °C
Build Plate Type	Cold plate, high-temperature plate or textured PEI plate
Build Plate Surface Preparation	Adhesive
Build Plate Temperature	80 – 110 °C
Cooling Fan	Off
Printing Speed	< 250 mm/s
Retraction Distance	0.6 – 1.0 mm
Retraction Speed	20 – 40 mm/s

PREPARED BY	CHECKED BY	APPROVED BY
R&D Engineer	Quality Officer	Operation Director

Relevant standard clauses: ISO 9001:2015 Clause 8.2.2 · Supporting Clauses 7.5.2, 7.5.3, 8.2.1, 8.2.3.1, 8.6

Printed copies are uncontrolled versions.

Porima Polimer Teknolojileri A.Ş. · www.porima3d.com

	INTEGRATED MANAGEMENT SYSTEM PORİMA ABS FR TECHNICAL DATA SHEET	Document Code	TD-ABSFR-175-EN
		Publication Date	10.09.2026
		Revision No	00
		Revision Date	-
		Pge	2 / 6

PROPERTY	VALUE
Chamber Temperature	35 – 60 °C
Max. Overhang Angle	55°
Max. Bridging Length	30 mm

4. PROPERTIES

The following values were determined on Porima standard specimens. **Tensile properties (ISO 527)** were measured in-house on a **calibrated Zwick Roell testing machine** and the records are retained. **Flexural (ISO 178) and impact (ISO 179) values are typical values**; accredited laboratory verification is in progress and this sheet will be revised when the report is issued. Physical and chemical properties are typical material data.

PHYSICAL PROPERTIES

PROPERTY	TEST METHOD	VALUE
Density	ASTM D792	1.16 g/cm ³
Melt Flow Index	ASTM D1238, 220 °C, 10 kg	51 ± 4 g/10 min
Melting Temperature	DSC, 10 °C/min	N/A
Glass Transition Temperature	DSC, 10 °C/min	N/A
Crystallization Temperature	DSC, 10 °C/min	N/A
Vicat Softening Temperature	ASTM D1525	N/A
Heat Deflection Temperature	ASTM D648, 18.6 kg	84 °C
Heat Deflection Temperature	ASTM D648, 4.6 kg	N/A
Flame Retardancy	UL94 (2.5 mm)	V-0 - accredited verification in progress
Flame Retardancy	UL94 (3.0 mm)	V-0 - accredited verification in progress
V-0		

MECHANICAL PROPERTIES

PROPERTY	TEST METHOD	VALUE
Young's Modulus	ASTM D638	1961± 200 MPa
Tensile Strength	ASTM D638	35 ± 5 MPa
Elongation at Break	ASTM D638	≥15 %
Flexural Modulus	ASTM D790	2206 ± 150 MPa
Flexural Strength	ASTM D790	64.7 ± 5 MPa
Impact Strength	ASTM D256, Notched 23°C, 6.4 mm	21 kg.cm/cm
PREPARED BY	CHECKED BY	APPROVED BY
R&D Engineer	Quality Officer	Operation Director

Relevant standard clauses: ISO 9001:2015 Clause 8.2.2 · Supporting Clauses 7.5.2, 7.5.3, 8.2.1, 8.2.3.1, 8.6

Printed copies are uncontrolled versions.

Porima Polimer Teknolojileri A.Ş. · www.porima3d.com

	INTEGRATED MANAGEMENT SYSTEM PORİMA ABS FR TECHNICAL DATA SHEET	Document Code	TD-ABSFR-175-EN
		Publication Date	10.09.2026
		Revision No	00
		Revision Date	-
		Pge	3 / 6

PROPERTY	TEST METHOD	VALUE
Impact Strength	ASTM D256, Notched, 23°C, 3.2 mm	30 kg.cm/cm

OTHER PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	VALUE
Odour	Odourless
Composition	ABS (Acrylonitrile Butadiene Styrene)
Skin Hazard	No hazard
Chemical Stability	Stable under normal storage and handling conditions
Solubility	Insoluble in water
Acid Resistance	Resistant
Alkali Resistance	Resistant
Organic Solvent Resistance	Not resistant to certain organic solvents
Oil and Grease Resistance	Not resistant to certain oils and greases
Flammability	Flame-retardant grade. Self-extinguishing behaviour is provided by dedicated additives; the UL94 V-0 classification is stated above and is undergoing accredited verification. Like all thermoplastics the material will burn under a sufficient ignition source
Combustion Products	Water, carbon oxides, nitrogen oxides
Combustion Odour	Pungent odour

5. SPECIMEN TEST CONDITIONS

5.1 SPECIMEN GEOMETRY

Mechanical test results were obtained on the standard specimen geometries below. **If the specimen geometry changes, the result changes;** the values on this sheet are valid only for these geometries.

PREPARED BY	CHECKED BY	APPROVED BY
R&D Engineer	Quality Officer	Operation Director

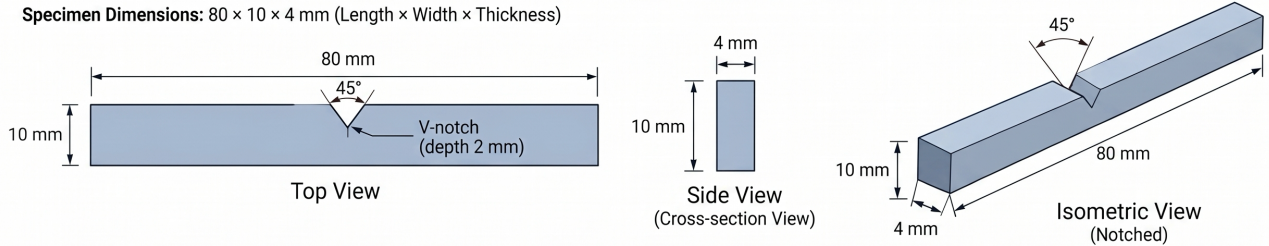
Relevant standard clauses: ISO 9001:2015 Clause 8.2.2 · Supporting Clauses 7.5.2, 7.5.3, 8.2.1, 8.2.3.1, 8.6

Printed copies are uncontrolled versions.

Porima Polimer Teknolojileri A.Ş. · www.porima3d.com

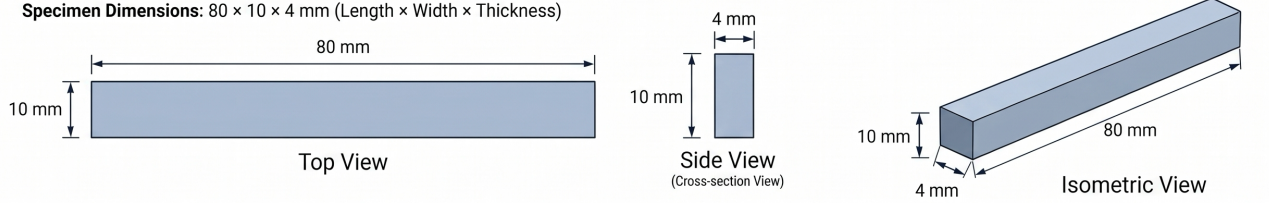
1. Impact Test (ISO 179)

Specimen Dimensions: 80 × 10 × 4 mm (Length × Width × Thickness)



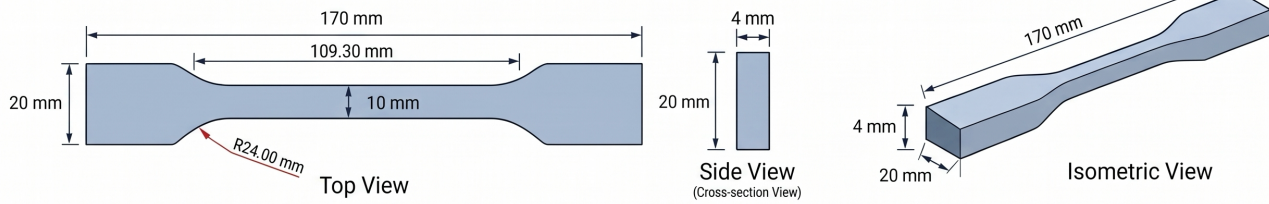
2. Bending Test (ISO 178)

Specimen Dimensions: 80 × 10 × 4 mm (Length × Width × Thickness)



3. Tensile Test (ISO 527-2)

Specimen Dimensions: Total Length: 170 mm | Gauge Length (L₀): 109.30 mm | Width (center part): 10 mm | Thickness: 4 mm



Tensile specimen - ISO 527-2 Type 1A

Symbol	Dimension	Value
l_3	Overall length	170 mm
l_1	Length of narrow parallel portion	80 mm
l_2	Distance between broad parallel portions	109.30 mm
b_1	Width of narrow portion	10 mm
b_2	Width at ends (shoulder)	20 mm
h	Thickness	4 mm
r	Transition radius	24 mm
L_0	Gauge length (extensometer)	68 mm (as applied)
L	Initial distance between grips	90 mm (as applied)

PREPARED BY	CHECKED BY	APPROVED BY
R&D Engineer	Quality Officer	Operation Director

	INTEGRATED MANAGEMENT SYSTEM PORİMA ABS FR TECHNICAL DATA SHEET	Document Code	TD-ABSFR-175-EN
		Publication Date	10.09.2026
		Revision No	00
		Revision Date	-
		Pge	5 / 6

Flexural specimen - ISO 178

Dimension	Value
Length × Width × Thickness	80 × 10 × 4 mm
Support span	64 mm (<i>16 × thickness, per ISO 178</i>)
Test speed	2 mm/min (<i>modulus determination, per ISO 178</i>)

Impact specimen - ISO 179-1 (Charpy)

Dimension	Value
Length × Width × Thickness	80 × 10 × 4 mm
Notch angle	45°
Notch depth	2 mm (<i>remaining width 8 mm</i>)
Notch base radius	0.25 mm (<i>notch type A, per ISO 179-1</i>)
Impact direction	Edgewise (<i>ISO 179-1/1eA</i>)
Hammer energy	[...]

5.2 PRINTING CONDITIONS

PROPERTY	VALUE
Nozzle Temperature	270 °C
Build Plate Temperature	90 °C
Printing Speed	150 mm/s
Infill Density	100 %

All test specimens were subjected to a controlled heat treatment at 70–80 °C for 4–6 hours prior to mechanical testing. The performance improvement obtained depends on the treatment temperature and duration as well as on the size, geometry, infill ratio and printing parameters of the part. Some models may undergo dimensional change or warping after treatment.

Drying and annealing must be carried out in a **turbo-fan (forced-air circulation)** drying oven with sufficient internal volume and homogeneous temperature distribution. Filament and printed parts must not contact heated surfaces directly and the recommended temperature must not be exceeded. **Domestic ovens and microwave ovens must not be used** for this purpose; their temperature control is inadequate and they may cause permanent damage to the material.

PREPARED BY	CHECKED BY	APPROVED BY
R&D Engineer	Quality Officer	Operation Director

Relevant standard clauses: ISO 9001:2015 Clause 8.2.2 · Supporting Clauses 7.5.2, 7.5.3, 8.2.1, 8.2.3.1, 8.6

Printed copies are uncontrolled versions.

Porima Polimer Teknolojileri A.Ş. · www.porima3d.com

	INTEGRATED MANAGEMENT SYSTEM PORİMA ABS FR TECHNICAL DATA SHEET	Document Code	TD-ABSFR-175-EN
		Publication Date	10.09.2026
		Revision No	00
		Revision Date	-
		Pge	6 / 6

6. DISCLAIMER

The performance values on this sheet are **typical values** determined on Porima standard specimens and are provided for comparison and preliminary selection at the design stage. **They are not lot-by-lot guaranteed acceptance criteria;** contractual acceptance criteria are defined in the relevant product specification.

The actual performance of a 3D printed part may differ from the values on this sheet depending on the printer used, the printing environment, part geometry, infill ratio, layer height and the chosen printing parameters. For critical applications it is therefore the user's responsibility to validate the part under its own service conditions.

The user is responsible for the fitness for purpose, regulatory compliance and safety of parts produced with Porima filaments. Porima cannot be held liable for unforeseen use scenarios of the product or for damage arising during such use.

PREPARED BY	CHECKED BY	APPROVED BY
R&D Engineer	Quality Officer	Operation Director

Relevant standard clauses: ISO 9001:2015 Clause 8.2.2 · Supporting Clauses 7.5.2, 7.5.3, 8.2.1, 8.2.3.1, 8.6

Printed copies are uncontrolled versions.

Porima Polimer Teknolojileri A.Ş. · www.porima3d.com