VEXA ASA

Technical Data Sheet

Version 1.0 | February 2025

Product Information

Product Name	VEXA ASA
Material Status	Mass Production
Product Features	• Exceptional UV resistance for outdoor applications • Superior weather and environmental resistance • Excellent mechanical and thermal properties • High impact strength and durability
Main Applications	Outdoor signage, mailboxes, garden equipment, automotive parts, structural components, weatherproof enclosures
Processing Method	FDM 3D Printing

Technical Properties

Mechanical Properties

Property	Test Standard	Test Condition	Unit	Typical Value
Young's Modulus (X-Y)	ISO 527	-	MPa	2450±270
Young's Modulus (Z)	ISO 527	-	MPa	2120±260
Tensile Strength (X-Y)	ISO 527	-	MPa	37±3
Tensile Strength (Z)	ISO 527	-	MPa	31±4
Elongation at Break (X-Y)	ISO 527	-	%	9.2±1.4
Elongation at Break (Z)	ISO 527	-	%	4.6±0.8
Flexural Modulus (X-Y)	ISO 178	-	MPa	1920±130
Flexural Modulus (Z)	ISO 178	-	MPa	1650±120
Flexural Strength (X-Y)	ISO 178	-	MPa	65±5
Flexural Strength (Z)	ISO 178	-	MPa	40±3
Impact Strength (X-Y)	ISO 179	-	kJ/m²	41.0±2.3
Impact Strength (X-Y) Notched	ISO 179	-	kJ/m²	19.6±1.8
Impact Strength (Z)	ISO 179	-	kJ/m²	4.9±0.6

Thermal Properties

Property	Test Standard	Test Condition	Unit	Typical Value
Heat Deflection Temp. (HDT)	ISO 75	0.45 MPa	°C	100
Heat Deflection Temp. (HDT)	ISO 75	1.8 MPa	°C	92
Glass Transition Temperature	DSC	10°C/min	°C	N/A
Melting Temperature	DSC	10°C/min	°C	210
Vicat Softening Temperature	ISO 306	-	°C	106
Saturated Water Absorption	-	25°C, 55% RH	%	0.45

Other Properties

Property	Test Standard	Test Condition	Unit	Typical Value
Melt Flow Index	-	260°C, 2.16 kg	g/10 min	7.0±0.8
Density	ISO 1183	-	g/cm³	1.05
Composition	-	-	-	ABS*
Flammability	-	-	-	Flammable

** Acrylonitrile-Styrene-Acrylate copolymer*

Recommended Printing Parameters

Parameter	Range
Nozzle Print Temperature	240-270°C
Print Bed Temperature	80-100°C
Chamber Temperature	45-60°C (enclosed printer recommended)
Print Bed Material	Engineering plate, high-temp plate, textured PEI
Print Bed Treatment	Glue recommended
Cooling Fan	0-80%
Printing Speed	< 250 mm/s
Retraction Distance	0.8-1.4 mm
Retraction Speed	20-40 mm/s
Drying Settings Before Printing	Blast drying oven: 80°C, 8 hours Printer heatbed: 90-100°C, 12 hours
Storage Humidity	< 20% RH (sealed, with desiccant)
Maximum Overhang Angle	~70°
Maximum Bridging Length	~40 mm

Note: These values are for reference only. Adjustments may be necessary based on specific printer models, part geometry, and application requirements. ASA requires an enclosed printer for best results.

Chemical Resistance

Chemical	Resistance
Acids	Resistant
Alkalis	Resistant
Water	Insoluble
Organic Solvents	Not Resistant
Oil and Grease	Not Resistant

Resistance may vary depending on specific chemical concentration, temperature, and exposure duration.

Safety and Handling

This product exhibits extremely low toxicity. Under normal conditions of use, inhalation, eye contact, and skin contact do not present significant health risks. However, standard precautions must be observed during handling, storage, use, and disposal.

Engineering and Administrative Controls:

• Maintain a clean work environment to prevent dust accumulation

• Minimise contact with molten material during processing operations

• The print processing area must be well-ventilated; enclosed chamber recommended

• When processed above the melting temperature, plastics can release fumes from decomposition, which may be irritating

Personal Protective Equipment (PPE):

• In dusty environments, or during operations that generate dust (e.g., sawing, filing, sanding printed parts), use respiratory protection approved by appropriate regulatory authorities

• Wear safety goggles when there is a risk of eye injury from airborne particles

• Use insulated gloves for hand protection when handling heated materials

Storage:

Store in a cool, dry, well-ventilated area away from direct sunlight. Keep sealed in original packaging with desiccant when not in use. Storage humidity should be maintained below 20% RH for optimal printing performance.

Important Notes

Test specimens were printed at 260°C with 80°C bed temperature at 200 mm/s with 100% infill. All specimens were annealed and dried at 80°C for 12 hours before testing.

Typical values represent laboratory averages and are provided for reference only, not as product guarantees. Results may vary with different printers, settings, and environmental conditions.

Annealing: Recommended at 80-90°C for 6-12 hours. Use a blast drying oven with even temperature distribution. Some prints may deform during annealing.

Disclaimer

VEXA - Premium 3D Printing Materials

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