VEXA PLA+ Pro

Technical Data Sheet

Version 1.0 | February 2025

Product Information

Product Name	VEXA PLA+ Pro
Material Status	Mass Production
Product Features	• High compatibility with most FDM printers • Environmentally friendly, non-toxic, and biodegradable • Available in multiple colours • Superior strength and toughness
Main Applications	Ornaments, toys, decorations, figurines, prototypes, functional parts
Processing Method	FDM 3D Printing

Technical Properties

Mechanical Properties

Property	Test Standard	Test Condition	Unit	Typical Value
Tensile Strength (X-Y)	ISO 527-2	50 mm/min	MPa	38.5
Young's Modulus (X-Y)	ISO 527-2	1 mm/min	MPa	2470
Elongation at Break (X-Y)	ISO 527-2	50 mm/min	%	6.3
Flexural Strength (X-Y)	ISO 178	2 mm/min	MPa	67
Flexural Modulus (X-Y)	ISO 178	2 mm/min	MPa	2350
IZOD Impact Notched (X-Y)	ISO 180	23°C	kJ/m²	15.2
IZOD Impact Notched (Z-X)	ISO 180	23°C	kJ/m²	13.7
Shore Hardness	ISO 868	23°C	HD	85

Thermal Properties

Property	Test Standard	Test Condition	Unit	Typical Value
Heat Deflection Temp. (X-Y)	ISO 75	0.45 MPa	°C	63

Glass Transition (Tg)	ISO 11357-3	10°C/min	°C	60
Melting Point	ISO 11357-3	10°C/min	°C	156
Decomposition Temp. @ 5%	ISO 11358	20°C/min	°C	≥374
Vicat Softening Temp.	ISO 306	5 kg, 50°C/h	°C	61
Mould Shrinkage	ISO 294	23°C	%	0.1-0.3
Coeff. of Thermal Expansion	ISO 11359-2	-	m/(m·°C)	101×10^{-6}

Other Properties

Property	Test Standard	Test Condition	Unit	Typical Value
Melt Flow Rate	ISO 1133	190°C/2.16 kg	g/10 min	6.3
Density	ISO 1183	23°C	g/cm^3	1.28
Volume Resistivity	IEC 60093	-	ohm·cm	2.90×10^{15}
Dielectric Constant	IEC 60250	1 kHz	-	1.51
Flammability	UL 94	1.5 mm	Class	HB

Recommended Printing Parameters

Parameter	Range
Nozzle Print Temperature	195-200°C at 50-100 mm/s 200-220°C at 200-400 mm/s
Print Bed Temperature	55-65°C
Print Bed Material	Standard (glass, PEI, textured)
Print Bed Treatment	None required
Cooling Fan	On
Raft Distance	0.4-0.6 mm
Retraction Distance	0.8-1.2 mm
Retraction Speed	30-80 mm/s
Ambient Temperature	Room temperature
Recommended Support Material	PVA
Drying Temperature	50°C

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

Chemical Resistance

Chemical	Resistance
Weak Acid (pH 3-6)	Good
Strong Acid (pH <3)	Poor
Weak Bases (pH 8-10)	Good
Strong Bases (pH >10)	Poor
Deionised Water	Good
Alcohol	Moderate
Ketone	Poor
Petroleum Fuels	Good
Ester	Good

Resistance ratings: Excellent, Good, Moderate, Poor

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 in accordance with standard operating procedures

• 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 materials, if necessary

Storage:

This product may discolour (yellow) upon prolonged exposure to ultraviolet light and should therefore be stored away from direct sunlight in a cool, dry environment. For optimal print quality, store in sealed containers with desiccant when not in use.

Important Notes

Test specimens were printed at 45 mm/s at 210°C with 100% infill using 90-degree line orientation.

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.

Disclaimer

VEXA - Premium 3D Printing Materials

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