IEMAI®

3D printing solutions for high performance materials

All IEMAI 3D Pellets TDS

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PETG Pellets Technical Data Sheet(TDS)

Physical	Condition	Test Method	Typical Value
Density		ASTM D792	1.29 g/cm^3
Water Absorption		ASTM D570	0.12%

Mechanical	Condition	Test Method	Typical Value
Tensile Modulus		ISO 527-2	3000 MPa
Tensile Yield Stress		ISO 527-2	53 MPa
Elongation at Yield		ISO 527-2	4%
Tensile Strength		ISO 527-2	53 MPa
Elongation at Stress		ISO 527-2	4%
Stress at Break		ISO 527-2	19 MPa
Nominal Elongation at Break		ISO 527-2	31%
Flexural Modulus		ISO 178	2040 MPa
Flexural Stress		ISO 178	171 MPa
Deflection at Flexural Strength		ISO 178	8.6 mm

Impact	Condition	Test Method	Typical Value
Notched Izod Impact Strength	23°C, 50 % RH	ISO 180	4.5kJ/m^2

Hardness	Condition	Test Method	Typical Value
Shore Hardness		ASTM D2240	70

Thermal	Condition	Test Method	Typical Value
Heat Deflection Temperature	0, 45 MPa	ISO 75-2	68°C
	1.8 MPa	ISO 75-2	62°C
Vicat Softening Temperature		ISO 306	78°C
Glass Transition Temperature		ASTM D3418	80°C

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PC Pellets Technical Data Sheet(TDS)

Physical Properties	Methods	Value
Density	ISO 1183, GB/T1033	1.19 g/cm^3 at 21°C
Melt Index	260°C, 1.2Kg	6-8 g/10 min
Flame Retardancy V2	UL94	V2

Mechanical Properties	Methods	Value
Glass transition	DSC, 10°C/min	113°C
Decomposition Temperature	TGA, 20°C/min	>360°C
Vicat softening Temperature	ISO 306 GB/T 1633	116.9°C
Heat deflection Temperature	ISO 75 108 MPa	99.3°C
Heat deflection Temperature	ISO 75 0.45MPa	114.1°C

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2048±66MPA
Young's modulus (Z)		1845± 35 MPA
Tensile Strength (X-Y)	ISO 527, GB/T 1040	59.7± 1.8 MPA
Tensile Strength (Z)		29.1± 4.1 MPA
Elongation at break (X-Y)	ISO 527, GB/T 1040	12.24 ± 1.44 %
Elongation at break (Z)		1.84 ± 0.14 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	**2044** ±58 MPA
Bending modulus (Z)		N/A
Bending Strength (X-Y)	ISO 178, GB/T 9341	94.1± 0.9 MPA
Bending Strength (Z)		N/A
Charpy impact strength (X-Y)	ISO 178, GB/T 9341	25.1±**1.9**kj/m^2
Charpy impact strength (Z)		N/A

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PLA Pellets Technical Data Sheet(TDS)

PHYSICAL PROPERTIES		
Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.17 g/cm^3 at 21 ℃
Melt Index	210℃, 2.16 Kg	7-10g/10min

Thermal Properties		
Property	Testing Method	Typical Value
Glass transition	DSC, 10℃/min	61 ℃
Melting temperature	DSC, 10℃/min	150 ℃
Crystallization temperature	DSC, 10℃/min	113.5 ℃
Vicat softening temperature	ISO 306 GB/T 1633	62.9 ℃
Heat deflection temperature	ISO 75 1.8MPa	58.1 ℃
Heat deflection temperature	ISO 75 0.45MPa	59.8 ℃

Mechanical		
Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2636 ± 330 MPa
Young's modulus (Z)		N/A
Tensile strength (X-Y)	ISO 527, GB/T 1040	46.6 ± 0.9 MPa
Tensile strength (Z)		43.5 ± 3.1 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	1.90 ± 0.21 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	3283 ± 132 MPa
Bending strength (X-Y)	ISO 178, GB/T 9341	85.1 ± 2.9 MPa
Charpy impact strength (X-Y)	ISO 179, GB/T 9343	2.68 ± 0.16 KJ/m^2

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WOODEN PLA Pellets Technical Data Sheet(TDS)

PHYSICAL PROPERTIES		
Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.2 g/cm^3 at 21 °C
Melt Index	210°C, 2.16 Kg	12g/10min

Thermal Properties		
Property	Testing Method	Typical Value
Glass transition	DSC, 10°C/min	64 °C
Melting temperature	DSC, 10°C/min	150 °C

Mechanical		
Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	3600 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	39 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	4 %
Charpy impact strength (X-Y)	ISO 179, GB/T 9343	20 KJ/m^2

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GF-ASA Pellets Technical Data Sheet(TDS)

PHYSICAL PROPERTIES		
Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.2 g/cm^3 at 21 ℃
Melt Index	220℃, 10 Kg	6-10g/10min

Thermal Properties		
Property	Testing Method	Typical Value
Glass transition	DSC, 10℃/min	98 ℃
Vicat Softening temperature	ISO 306 GB/T 1633	105 ℃
Heat Deflection Temperature	ISO 75 1.8MPa	97℃

Mechanical		
Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	7237±136 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	101±2.4 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	2.6±0.3 %
Bending modulus	ISO 178	7094±89 MPa
Bending strength	ISO 178	149.6±2.1 MPa
Charpy impact strength (X-Y)	ISO 179, GB/T 9343	8.5±0.5 KJ/m^2

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CF-PAHT Pellets Technical Data Sheet(TDS)

PHYSICAL PROPERTIES		
Property	Testing Method	Typical Value
Density	ISO 1183	1.28 g/cm^3
Water Absorption	ISO 62, ISO 3167 A	<0.2 %; 23℃/24h
Mould Shrinkage (parallel)	ISO 294, ∥ 60x60x2 mm	0.05 %
Mould Shrinkage (transverse)	ISO 294, ⊥ 60x60x2 mm	0.2 %

THERMAL PROPERTIES		
Property	Testing Method	Typical Value
Heat Deflection Temperature	ISO 75, 80x10x4 mm	230 ℃; HDT A
Service Temperature	ISO 3167 A	180 ℃; during lifetime max. 200 h

MECHNICAL PROPERTIES At 23°C / 50% RH		
Property	Testing Method	Typical Value
Tensile Strength	ISO 527, ISO 3167 A	260 MPa; dry, @50 mm/min
Elongation	ISO 527, ISO 3167 A	1.5 %; dry, @50 mm/min
Modulus of Elasticity	ISO 527, ISO 3167 A	20 GPa; dry, @1 mm/min
Flexural Strength	ISO 178, ISO 3167 A	350 MPa; dry, @10 mm/min
Flexural Elongation @Fmax.	ISO 178, ISO 3167 A	2.2 %; dry, @10 mm/min
Flexural Modulus	ISO 178, ISO 3167 A	18 GPa; dry, @2 mm/min
Charpy Impact Strength	ISO 179 1eU, 80x10x4 mm	40 kJ/m^2; dry
Charpy Impact Strength Notched	ISO 179 1eA, 80x10x4 mm	4.5 kJ/m^2; dry

ELECTRICAL PROPERTIES		
Property	Testing Method	Typical Value
Insulation Resistance	DIN EN 62631, ISO 3167 A	<10^3 Ω; Strip Electrode R_{25}
Surface Resistance	DIN EN 62631, Ronde 60x4 mm	<10^3 Ω; R_{OB}

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CF-PPS Pellets Technical Data Sheet(TDS)

PHYSICAL PROPERTIES		
Property	Testing Method	Typical Value
Density	ISO 1183-3	1.3 g/cm^3
Water Absorption	ISO 62, ISO 3167 A	<0.1 %; 23℃/24h
Mould Shrinkage (parallel)	ISO 294, ∥ 60x60x2 mm	0.15 %
Mould Shrinkage (transverse)	ISO 294, ⊥ 60x60x2 mm	0.5 %
Combustion Characteristic	UL 94, 1/16"	(V-0)

THERMAL PROPERTIES		
Property	Testing Method	Typical Value
Heat Deflection Temperature	ISO 75, 80x10x4 mm	245 ℃; HDT A
Service Temperature	IEC 60216, ISO 3167 A	220 ℃; 20 h

MECHNICAL PROPERTIES At 23℃ / 50% RH		
Property	Testing Method	Typical Value
Tensile Strength	ISO 527, ISO 3167 A	110 MPa; dry, @50 mm/min
Elongation	ISO 527, ISO 3167 A	1.3 %; dry, @50 mm/min
Modulus of Elasticity	ISO 527, ISO 3167 A	10 GPa; dry, @1 mm/min
Flexural Strength	ISO 178, ISO 3167 A	180 MPa; dry, @10 mm/min
Flexural Elongation @Fmax.	ISO 178, ISO 3167 A	2.2 %; dry, @10 mm/min
Flexural Modulus	ISO 178, ISO 3167 A	9 GPa; dry, @2 mm/min
Charpy Impact Strength	ISO 179 1eU, 80x10x4 mm	30 kJ/m^2; dry
Charpy Impact Strength Notched	ISO 179 1eA, 80x10x4 mm	5 kJ/m^2; dry

ELECTRICAL PROPERTIES		
Property	Testing Method	Typical Value
Surface Resistance	DIN EN 62631-3-2, Ronde 60x4 mm	<10^5 Ω; R_{OB}

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