Product technical instructions

Revision date：2020-04 Material No.：D3305010003

Product brand：Piocreat_ABS_5022 Version：V1.0

Product Description

Piocreat_ABS-5022 is a reinforced ABS pellet containing 20% carbon fiber. It has outstanding mechanical properties, printing performance and good dimensional stability. It is specially designed for large-scale 3D printing.

Physical properties

Project	Test standards	Test value
Densities(g/cm3,21.5°C)	ASTM D792 (ISO 1183, GB/T 1033)	1.2
Melt index(g/10min)	220 °C, 10 kg	11
Glass transition temperature(°C)	DSC, 10 °C/min	101
Vicat softening temperature(°C)	ASTM D1525 (ISO 306 GB/T 1633)	113
Heat distortion temperature(°C)	ISO 75 1.8MPa	98
	0.45MPa	102

Test with injection molded specimens

Mechanical behavior

Project	Test standards	Test value
Young's modulus (MPa)	ASTM D638(ISO 527, GB/T 1040)	11515±224
Tensile strength(MPa)	ASTM D638(ISO 527, GB/T 1040)	132.2±2.0
Elongation at break(%)	ASTM D638(ISO 527, GB/T 1040)	2.2±0.2
Flexural modulus (MPa)	ASTM D790(ISO 178, GB/T 9341)	9574±277
Bending strength(MPa)	ASTM D790(ISO 178, GB/T 9341)	185.7±3.8
Simply supported beam impact strength (kJ/m^2)	ASTM D256(ISO 179, GB/T 1043)	9.5±0.6

Test with injection molded specimens

Mechanical behavior

Project	Test standards	Test value
Flexural modulus (MPa)(X-Y)	ASTM D790(ISO 178, GB/T 9341)	4565±701
Bending strength (MPa) (X-Y)	ASTM D790(ISO 178, GB/T 9341)	82.1±6.0
Flexural modulus(MPa)(Z)	ASTM D790(ISO 178, GB/T 9341)	1518±265
Bending strength(MPa)(Z)	ASTM D790(ISO 178, GB/T 9341)	28.2±1.5
Impact strength of simply supported beam (kJ/m^2)(Z)	ASTM D256(ISO 179, GB/T 1043)	21.9±2.0

1. Test using samples printed under the following conditions:
Die temperature=235°C, printing speed=10-15kg/h, die diameter: 8.0mm, 100% solid spline

Recommended printing conditions

parameters	Recommended settings
Drying temperature (°C)	80
Drying time (hours)	3-4
Maximum moisture content (%)	0.02
Barrel 1 temperature (°C)	210-220
Barrel 2 temperature (°C)	220-240
Barrel 3 temperature (°C)	230-250
Die temperature (°C)	230-240
Platform temperature(°C)	40 - 80

Other suggestion

- If printing stops within a short period of time (e.g. 10-30 minutes), it is recommended to stop printing and continue extrusion until the extruder is completely empty.
- If printing stops for a long time, such as several hours, it is recommended to stop feeding and continue extrusion until the extruder is completely empty, and then use polyethylene (PE) to clean the extruder. This helps avoid carbonization of the material and keeps the extruder in good working condition.

Disclaimer

The values given in this data sheet are for reference and comparison only. They should not be used for design specifications or quality control. Actual values may vary depending on printing conditions. The end-use performance of printed parts depends not only on the material, but also on the part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without prior notice.

Each user is responsible for determining safety, legality, technical suitability for intended use, and disposal and recycling. Unless otherwise stated, Piocreat makes no warranty as to its suitability for any purpose or application. Piocreat is not responsible for any damage, injury or loss resulting from the use of Piocreat materials in any application.

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