

PrimePart® PLUS PA 2221

Polyamide 12

EOS GmbH

Message:

PrimePart® PLUS (PA 2221) is a refresh optimised polyamide 12 powder for processing in laser sintering systems. Therefore the need for new powder is considerably reduced, making PrimePart® PLUS economically very attractive. Laser sintered parts from PrimePart® PLUS are natural coloured and a little translucent.

Properties

economic multipurpose material

balanced part properties

Acceptance criteria

biocompatibility according to ISO 10993-1

USP biological tests classification VI

the single components comply with FDA, 21 CFR, §177.1500 (b) 9, excluding contact with alcohol-containing foods and beverages

Typical applications

functional parts

General Information			
Features	Biocompatible		
	Food Contact Acceptable		
	Good Chemical Resistance		
	Good Thermal Stability		
	Grease Resistant		
	High Heat Resistance		
	Oil Resistant		
	Solvent Resistant		
Uses	Automotive Applications		
	Engineering Parts		
Agency Ratings	FDA 21 CFR 177.1500		
	ISO 10993		
	USP Class VI		
Appearance	Natural Color		
	Translucent		
	White		
Forms	Powder		
Processing Method	3D Printing, Laser Sintering/Melting		
Physical	Nominal Value	Unit	Test Method
Density	0.970	g/cm ³	Internal Method
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 15 sec)	75		ISO 868

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	1650	MPa	ISO 527-2
-- ²	1600	MPa	ISO 527-2
Tensile Stress			
-- ³	40.0	MPa	ISO 527-2
-- ⁴	47.0	MPa	ISO 527-2
Tensile Strain			
Break ⁵	16	%	ISO 527-2
Break ⁶	4.0	%	ISO 527-2
Flexural Modulus			
23°C ⁷	1390	MPa	ISO 178
23°C ⁸	1340	MPa	ISO 178
Flexural Stress			
8.4% Strain ⁹	59.0	MPa	ISO 178
8.2% Strain ¹⁰	54.0	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
23°C ¹¹	3.2	kJ/m ²	ISO 179/1eA
23°C ¹²	3.9	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength			
23°C ¹³	18	kJ/m ²	ISO 179/1eU
23°C ¹⁴	35	kJ/m ²	ISO 179/1eU
23°C ¹⁵	61	kJ/m ²	ISO 179/1fU
23°C ¹⁶	22	kJ/m ²	ISO 179/1fU
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, Unannealed ¹⁷	157	°C	ISO 75-2/B
0.45 MPa, Unannealed ¹⁸	148	°C	ISO 75-2/B
1.8 MPa, Unannealed ¹⁹	69.0	°C	ISO 75-2/A
1.8 MPa, Unannealed ²⁰	70.0	°C	ISO 75-2/A
Melting Temperature ²¹	187	°C	ISO 11357
NOTE			
1.	X Direction		
2.	Z Direction		
3.	Z Direction		
4.	Y Direction		
5.	X Direction		
6.	Z Direction		
7.	X Direction		
8.	Z Direction		
9.	X Direction		

10.	Z Direction
11.	Z Direction
12.	Y Direction
13.	Z Direction
14.	Y Direction
15.	X Direction
16.	Z Direction
17.	X Direction
18.	Z Direction
19.	Z Direction
20.	Y Direction
21.	20°C/min

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