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SAF™ PP – VAPORFUSE SURFACING



The Powerfuse S PP is the green & industrial vapor polishing system for injection molding like surfaces for your additive manufactured parts. VaporFuse Surfacing (VFS) gives your applications a sealed and washable surface and reduces the surface roughness to a minimum. DyeMansion offers three standard smoothing levels (Light, Balanced and Strong) and individual program customization for your material.

This technical data sheet compares the properties of printed parts before and after DyeMansion Finishing for SAF™ PP.

TEST PARTS

All test parts for the determination of mechanical properties and surface roughness made of SAF™ PP were:

- ✓ printed with a H350 and depowdered with the Powershot C
- ✓ printed in XY- and Z-Direction
- ✓ processed with the SAF™ PP Balanced program in the Powerfuse S PP



MECHANICAL PROPERTIES

Test	Printing-Direction	SAF™ PP printed	SAF™ PP VFS Balanced	Unit	Test Standard
Tensile Modulus (+ 23 °C) ¹	XY	1310	1205	MPa	ISO 527-2
	Z	1377	1223		
Tensile Strength (+ 23 °C) ¹	XY	26	25	MPa	ISO 527-2
	Z	26	26		
Elongation at Break (+ 23 °C) ¹	XY	19	42	%	ISO 527-2
	Z	10	18		
Charpy Impact Strength (notched, + 23 °C)	XY	3,3	3,3	kJ/m ²	ISO 179-1/1eA
	Z	2,4	2,6		
Ross Flex Tests (2 mm, + 23 °C)	XY	70.000	> 100.000	Cycles at break	
	Z	10.000	70.000		

¹ Tensile Modulus Speed 50 mm/min, Tensile Test Speed 50 mm/min

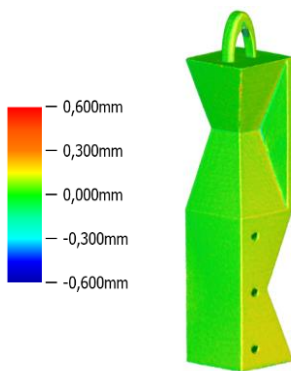
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DIMENSIONAL ACCURACY

The effect of VaporFuse Surfacing on the dimensions of SAF™ PP was determined by 3D scans before and after the process in the Powerfuse S PP. Using a Keyence VL-500 3D-Scanner, the deviations of the VFS treated to the as-printed SAF™ PP were determined as follows:



Orientation	Relative deviation between as-printed and VFS treated part:
X-Direction	+ 0.16 %
Y-Direction	- 0.12 %
Z-Direction	+ 0.03 %



SURFACE ROUGHNESS

Example values for the change in roughness of SAF™ PP by VaporFuse Surfacing with the SAF™ PP - Balanced program are given below for three different surfaces. Surface roughness measurements were performed with a 3D-Profilometer VR-3200 according to EN ISO 25178.

