

Zetamix Epsilon Filaments



PRODUCT DESCRIPTION

Zetamix Epsilon filaments are used for 3D printing.
Diameter available: 1.75 mm and 2.85 mm

IDENTIFICATION

Trade name	Zetamix Epsilon $\epsilon = 2.2$	Zetamix Epsilon $\epsilon = 4.5$	Zetamix Epsilon $\epsilon = 7.5$	Zetamix Epsilon $\epsilon = 10$
Chemical name of raw material	Polyoleofine	Polyoleofine	Polyoleofine	Polyoleofine
Binding proportion (vol) %	100	70	60	52
Binding proportion (mass) %	100	35	26	20
TiO ₂ proportion (vol) %	0	30	40	48
TiO ₂ proportion (mass) %	0	65	74	80

TYPICAL PROPERTIES OF THE FILAMENT

	$\epsilon = 2.2$	$\epsilon = 4.5$	$\epsilon = 7.5$	$\epsilon = 10$
Mass fluidity index [g/10 min]	16	16	16	16
Volumetric fluidity index [cm ³ /10 min]	5	5	<u>5</u>	<u>5</u>
Moisture Absorption 24 hours [%]	<0.1%	<0.1%	<0.1%	<0.1%
Moisture Absorption , 7 days [%]	<0.3%	<0.3%	<0.3%	<0.3%
Shore D	56	56	56	56

PROPERTIES

Zetamix	$\epsilon = 2.2$	$\epsilon = 4.5$	$\epsilon = 7.5$	$\epsilon = 10$
Dielectric properties				
Dielectric constant *	2.2 (± 0.2)	4 (± 0.5)	7.5 (± 0.5)	10 (± 0.5)
Loss tangent	$< 1.10^{-3}$ ($\pm 5.10^{-4}$)	$\approx 1.10^{-3}$ ($\pm 5.10^{-4}$)	$\approx 1.10^{-3}$ ($\pm 5.10^{-4}$)	$\approx 1.10^{-3}$ ($\pm 5.10^{-4}$)
Breakdown Voltage ** [kV/mm]	25	4	4	4

* Dielectric constant at 9.4 GHz. The permittivity value depends on the printing parameters and can decrease if the part is not fully dense $\pm 5\%$ between -50°C to $+110^{\circ}\text{C}$

** Minimum values based on the lowest component. Actual values may be higher but it cannot exceed 32 kV/mm.

PROPERTIES

	$\epsilon = 2.2$	$\epsilon = 4.5$	$\epsilon = 7.5$	$\epsilon = 10$
Physical properties				
Specific gravity	1.00	1.60	2.10	2.32
Water absorption, max.	<0.3%	<0.3%	<0.3%	<0.3%
Mechanical properties				
Tensile strength	23 MPa	23 MPa	23 MPa	23 MPa
Flexural strenght	25 MPa	25 MPa	25 MPa	25 MPa
Flexion at break	3.2%	3.2%	3.2%	3.2%
Elongation at break	3.1%	3.1%	3.1%	3.1%
Impact properties				
Charpy impact test (KJ/m ²)	11.86	11.86	11.86	11.86
Thermal properties				
Heat deflection temperature	110°C	110°C	110°C	110°C

Disclaimer : The results presented above are for information and do not constitute a legally binding Material Safety Data sheet (MSDS). Moreover, values are significantly dependent on printing, operators experience and surrounding conditions. Any descriptions, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product.