Zetamix Black Zirconia datasheet

PRODUCT DESCRIPTION

Zetamix Black Zirconia is a 3%$_{mol}$ stabilized zirconia filament used for 3D printing. The binders mixed with zirconia powder enables to have a flexible and resistant filament usable with classical FFF printers (Fused Filament Fabrication). Printed parts need to be debinded and sintered.

Diameter available: 1,75mm
Postprocess : chemical debinding and sintering

IDENTIFICATION

Trade name	Zetamix Zirconia
Chemical name of raw material	$ZrO_2 \cdot Y_2O_3$
Binding proportion (vol) %	50
Binding proportion (mass) %	15
Zirconia proportion (vol) %	50
Zirconia proportion (mass) %	85

Nanoe 6 rue des frênes,
91160 Ballainvilliers
France

E-mail: contact@nanoe.com
Phone: +33 9 81 98 33 64 Fax:
+33 9 81 70 75 52

PRINTING AND SINTERING RECOMMANDATION

Printing temperature	170-180°C
Solvant debinding	Acetone
Sintering temprature	1475°C under air
Shrinkage	21.5% ±1% (x y and z)
Density	98-99%

TYPICAL PROPERTIES OF FILAMENTS

Specific Gravity [$g.cm^{-3}$]	3.6
Melt Flow Index [g/10(min)] (@180°C, 5kg, half-die)	50
Melt Volume Rate [cm^3/10(min)]	13.9

DIELECTRIC PROPERTIES

Dielectric constant * ➔ 29 (± 0.8)
Loss tangent ➔ ≈ 1.10^{-3} (± 2.10^{-4})

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MECHANICAL PROPERTIES ON FINAL PART

Hardness (Hv10) GPa ➔ 19

Bending strength ➔ 400 à 1000 MPa

Disclaimer : The results presented above are for information and do not constitute a legally binding Material Safety Data sheet (MSDS). Moreover, values are significally dependent on printing setting, debinding parameters, 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.

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