



## Zetamix Alumina datasheet

### PRODUCT DESCRIPTION

**Zetamix Alumina** is an alumina filament used for 3D printing. The binders mixed with alumina 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: 1.75 mm and 2.85 mm

Post-process: debinding and sintering

### IDENTIFICATION

|                                            |                         |
|--------------------------------------------|-------------------------|
| Trade name                                 | Zetamix Alumina         |
| Chemical symbol                            | $\text{Al}_2\text{O}_3$ |
| Binder system proportion $_{\text{vol}}\%$ | 55                      |
| Binder system proportion $_{\text{wt}}\%$  | 17                      |
| Alumina proportion $_{\text{vol}}\%$       | 45                      |
| Alumina proportion $_{\text{wt}}\%$        | 83                      |

## PRINTING AND SINTERING RECOMMANDATION

|                       |                                 |
|-----------------------|---------------------------------|
| Printing temperature  | 120°C                           |
| Solvent debinding     | Acetone                         |
| Sintering temperature | 1550°C under air                |
| Shrinkage             | x,y = 20.8% ±1% / z = 23.2% ±1% |
| Density               | 98-99%                          |

## TYPICAL PROPERTIES OF FILAMENTS

|                                             |       |
|---------------------------------------------|-------|
| Specific Gravity [g.cm <sup>-3</sup> ]      | 2,5   |
| Melt Flow Rate [g/10(min)]                  | 200   |
| Melt Volume Rate [cm <sup>3</sup> /10(min)] | 80    |
| Moisture Absorption 24 hours [%]            | <0,1% |
| Moisture Absorption , 7 days [%]            | <0,3% |
| Shore D hardness                            | 40    |

## DIELECTRIC PROPERTIES

Dielectric constant \* → 9 (± 0.5)

Loss tangent → ≈ 1.10<sup>-3</sup> (± 5.10<sup>-4</sup>)

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

## MECHANICAL PROPERTIES ON FINAL PART

Hardness (Hv10) GPa → 19

Bending strength → 200 to 500 MPa

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 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.