concept

Technical Data Sheet ZYTTRIA®

The values are tested on tests according to Iso standards and refer to the sintered products.
The values below can not be extended to complicated geometries without Co.n.ce.p.t. authorization.

ZYTTRIA®	Z401 WHITE TRASLUCENT	Z402 EXTRA TRASLUCENT	Z402 EXTRA TRASLUCENT PLUS	Z COLOR EXTRA TRASLUCENT PLUS	Z MULTICOLOR EXTRA TRASLUCENT PLUS	Z403 ANTERIOR	Z COLOR ANTERIOR	Z MULTICOLOR ANTERIOR
ZIRCONIA STABILIZER	Y_2O_3	Y_2O_3	Y_2O_3	Y_2O_3	Y_2O_3	Y_2O_3	Y_2O_3	Y_2O_3
COLOR	White Translucent	White ExtraTranslucent	White ExtraTranslucent	Precoloured Monochromatic Extra Translucent	Precoloured Polychromatic Extra Translucent	White Super Translucent	Precoloured Super Translucent	Precoloured Polychromatic Super Translucent
SINTERING TEMPERATURE	1450°C	1530°-1580°C	1450°C-1500°C-1550°C	1450°C-1500°C-1550°C	1450°C-1500°C-1550°C	1450°C	1450°C	1450°C-1550°C
CHEMICAL FORMULA								
ZrO_2+HfO_2	> 94.5%	> 94.5%	> 94.2%	> 94%	>99%	≥ 90,5%		>99%
Y_2O_3	5.15% ± 0.2%	5.15% ± 0.2%	5.15% ± 0.2%	>5.15%	>5.2%	7.5-9.7%	7.5-9.7%	7.5-9.5%
Al_2O_3	0.25%±0.1%	< 0.1%	0.1%±0.02%	<0.1%	<0.1%	≤ 0.05%	≤ 0.05%	≤ 0.1%
SiO_2	< 0.02%	< 0.02%	< 0.01%	< 0.01%	≤0.01%	≤ 0.002%	≤ 0.002%	≤ 0.002%
Fe_2O_3	< 0.01%	< 0.01%	< 0.01%	< 0.1%	<0.1%	≤ 0.002%	≤ 0.1%	≤ 0.1%
NaO_2	< 0.04%	< 0.04%	< 0.01%	< 0.04%	<0.04%			
PHYSICAL PROPERTIES								
SINTERED DENSITY	≥ 6.05 g/cm³	≥ 6.05 g/cm³	> 6.06g/cm³	> 6.05g/cm³	≥6.05g/cm³	> 6.04g/cm³	≥6.05 g/cm³	≥6.0 g/cm³
WATER ABSORPTION	Not Absorb	Not Absorb	Not Absorb	Not Absorb	Not Absorb	Not Absorb	Not Absorb	Non assorbe
VICKERS HARDNESS	> 12.5 GPa	> 12.5 GPa	> 12.5 GPa	> 12.0 GPa	>12.0 GPa	≥ 12.0 GPa	≥ 12.0 GPa	≥ 12.0 GPa
POROSITY	0	0	0	0	0	0	0	0
COMPRESSIVE STRENGTH	> 2100 MPa	> 2100 MPa	> 2100 MPa	> 2100 MPa	>2100MPa	> 2100 MPa	> 2100 MPa	> 2100 MPa
BENDING STRENGTH(3 PT.)	> 1200 MPa	> 1000 MPa	> 1100 MPa	> 1100 MPa	>1000 MPa	600±100 MPa	600±100 MPa	800±100 MPa
YOUNG'S MODULUS	200 GPa	200 GPa	200 GPa	200 GPa	210 GPa	210 GPa	210 GPa	210 GPa
FRACTURE TOUGHNESS (KIC) Mpa $m^{1/2}$	9	9	9	10	>6	2.5	2.5	2.5
THERMAL CONDUCTIVITY W/Mx°k (Kelvin)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
HEAT SHOCK (PRESINTERED)	220°C	220°C	220°C	220°C	220°C	220°C	220°C	220°C
THERMAL EXPANSION COEFFICIENT: 20°C-400°C 20°C-800°C	9,6*10 exp-6/°C 10,7*10 exp-6/°C	9,6*10 exp-6/°C 10,7*10 exp-6/°C	9,6*10 exp-6/°C 10,5*10 exp-6/°C	9,6*10 exp-6/°C 10,5*10 exp-6/°C	10.7*10exp-6/°C	10,4*10 exp-6/°C	10,4*10 exp-6/°C	10,4*10 exp-6/°C
RADIOACTIVITY	<0,015 Bq/g	<0,015Bq/g	<0,015 Bq/g	<0,015 Bq/g	<0,015 Bq/g	≤ 0,015Bq/g	<0,015 Bq/g	<0,015 Bq/g
CYTOTOXICITY (ISO 10993/DIN EN ISO 9363)	Non-toxic	Non-toxic	Non-toxic	Non-toxic	Non-toxic	Non-toxic	Non-toxic	Non-toxic