

# Technical Data

## cara Zirconium Dioxide

Chemical composition (Content in mass%):

cara Zirconium Dioxide white, B-light, A-intensive				
$ZrO_2 + HfO_2 + Y_2O_3 \geq 99$	$Y_2O_3$	$HfO_2$	$Al_2O_3$	other oxides
	4.5–6.0	≤ 5.0	≤ 0.5	≤ 0.5
Characteristic			Value	
Density [g/cm <sup>3</sup> ]			> 6.0	
Modulus of elasticity [GPa]			210	
Coefficient of thermal expansion (CTE, 25–500°C) [µm/mK]			10.5	
Fracture toughness [MPa√m]			8	
Flexural strength [MPa]			1200	
Vickers hardness			1200	

Zr

Chemical composition (Content in mass%):

cara Zirconium Dioxide translucent white, light, medium, intensive				
$ZrO_2 + HfO_2 + Y_2O_3 \geq 99$	$Y_2O_3$	$HfO_2$	$Al_2O_3$	other oxides
	4.5–6.0	≤ 5.0	≤ 0.5	≤ 0.5
Characteristic			Value	
Density [g/cm <sup>3</sup> ]			> 6.0	
Modulus of elasticity [GPa]			210	
Coefficient of thermal expansion (CTE, 25–500°C) [µm/mK]			10.5	
Fracture toughness [MPa√m]			5	
Flexural strength [MPa]			1200	
Vickers hardness			1300	

Zr<sub>tr</sub>

Chemical composition (Content in mass%):

cara Zirconium Dioxide ML Shade A, Shade B, Shade C				
$ZrO_2 + HfO_2 + Y_2O_3 \geq 99$	$Y_2O_3$	$HfO_2$	$Al_2O_3$	other oxides
	4,5–6,0	≤ 5,0	≤ 0,5	≤ 0,5
Characteristic			Value	
Density [g/cm <sup>3</sup> ]			> 6,0	
Modulus of elasticity [GPa]			205	
Coefficient of thermal expansion (CTE, 25–500°C) [µm/mK]			10,5	
Fracture toughness [MPa√m]			8	
Flexural strength [MPa]			1400	
Vickers hardness			1300	

Zr<sub>ML</sub>

The general safety regulations for handling dental products are applicable.

### Contact in Germany

Kulzer GmbH  
Leipziger Straße 2  
63450 Hanau  
cara-service@kulzer-dental.com  
kulzer.com/cara

Giving a hand to oral health.



**KULZER**  
MITSUI CHEMICALS GROUP