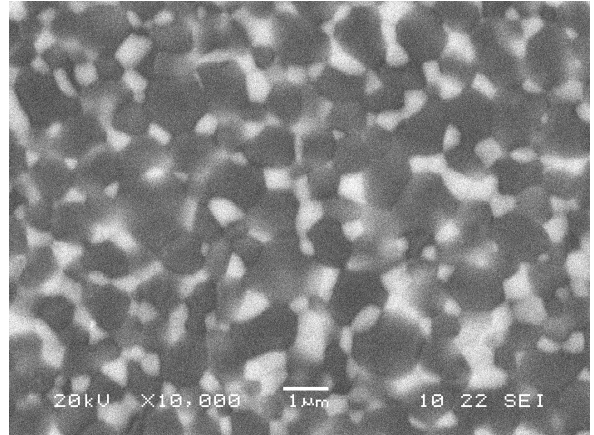


MATERIAL DATA SHEET THERMAZYL®

Thermazyl® is a **zirconia toughened alumina** ceramic specially designed for our products.

Its carefully controlled chemistry and microstructure imparts **excellent resistance to corrosion** by both acid and alkali cleaning solutions and to the hydro-thermal destabilization that happens with zirconia ceramics during steam sterilization. This material has been especially designed for application requiring **good thermal shock resistance**.

This material is also **non-cytotoxic** and **does not release particles**. It is easy to clean due to the low porosity. It has **high wear resistance**, a **low friction coefficient** and accepts highly smooth surface finishing as a result of its **very fine grain size** and **low porosity** surface



Thermazyl™ Microstructure

Chemical composition:

Component	Al ₂ O ₃	ZrO ₂	Y ₂ O ₃	SiO ₂	Fe ₂ O ₃	Na ₂ O	MgO	CaO	HfO ₂
% weight	75	23.5	1.2	< 0.15	< 0.01	< 0.01	< 0.10	< 0.07	< 0.50

Mechanical, physical and electrical properties:

Values at 20°C

Properties	Unit	Thermazyl®
Color	-	White
Density	10 ³ kg/m ³	> 4.3
Porosity	% volume	0
Thermal expansion coefficient (20 – 1000°C)	10 ⁻⁶ /°C	9 – 9.5
Thermal conductivity	W/m.°C	20
Vickers hardness	GPa	16
Bend strength	MPa	600 – 700
Young's Modulus	GPa	350
Fracture toughness (K _{IC} factor)	MPa.m ^{1/2}	5 – 6.5

The properties quoted above are typical and should be used for guidance only. They vary somewhat with method of manufacture, size and shape and advice should be sought for critical applications.

Food and pharmaceutical products contact:

Thermazyl® complies with:

- directive 80/500/EEC amended
- FDA regulation.