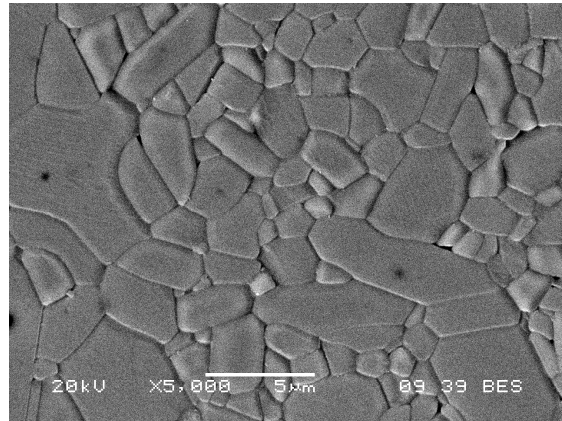


MATERIAL DATA SHEET PHARMALOX®

Pharmalox® is a high purity alumina ceramic (>99.7% Al₂O₃) specially designed for our products.

The high purity of this material results in very clean grain boundaries which contribute to its **excellent corrosion resistance** in the presence of both acid and alkali-based cleaning solutions e.g. NaOH and HCL.

Pharmalox® is **inert, 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 very **smooth surface finishes**.



Pharmalox® Microstructure

Chemical composition:

Component	Al ₂ O ₃	Na ₂ O	SiO ₂	Fe ₂ O ₃	MgO	CaO
% weight	> 99.7	< 0.09	< 0.03	< 0.04	< 0.06	< 0.03

Mechanical, physical and electrical properties:

Values at 20°C

Properties	Unit	Pharmalox®
Color	/	Ivory
Density	10 ³ kg/m ³	> 3.90
Porosity	% volume	0
Thermal expansion coefficient (20 – 1000°C)	10 ⁻⁶ /°C	8 – 8.6
Thermal conductivity	W/m.°C	29 – 35
Vickers hardness	GPa	18
Bend strength	MPa	310 – 400
Young's Modulus	GPa	360 – 390
Fracture toughness (K _{1C} factor)	MPa.m ^{1/2}	3.5 – 4
Electrical resistivity	Ω.cm	> 10 ¹⁴

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:

Pharmalox® complies with:

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