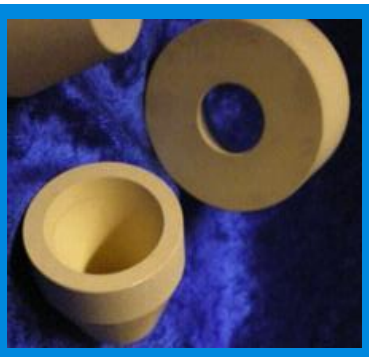
FINAL ADVANCED MATERIALS

TECHNICAL DATA SHEET

Rev. N° 0 - 25.04.2023



15MS.005
Porous zirconia crucibles

Applications

- Crucibles for melting by induction
- Crucibles usable in oxidizing atmosphere or under vacuum
- Crucibles for precious metals or superalloys

Overview

Zirconium oxide crucibles are perfect for a use up to 1,800 °C. Zirconia is partially stabilized with magnesia and is obtained by isostatic pressing.

Characteristics

- Use up to 1,800 °C
- Very good thermal shocks resistance
- Oxidizing resistant
- Very low thermal expansion
- Not wet by molten metals

Range

Only tailor-maid

Technical data

Properties		Unit	Zirconia
Composition	ZrO_2	%	95.3
	MgO		2.2
	SiO_2		1.2
	Al_2O_3		0.7
	CaO		0.2
	Fe_2O_3		0.2
	TiO_2		0.2
Density		g/cm^3	4.6
Open porosity		%	18
Breaking load		MPa	24.1
Peak temperature		°C	1,800
Thermal conductivity (at 800 °C)		$W.m^{-1}.K^{-1}$	1.4
Thermal expansion	at 600 °C	$10^{-6}K^{-1}$	6.6
	at 1,000 °C		6.2
	at 1,300 °C		2.3

Physical variables included in this documentation are provided by way of indication only and do not, under any circumstances, constitute a contractual undertaking. Please contact our technical service if you require any additional information.

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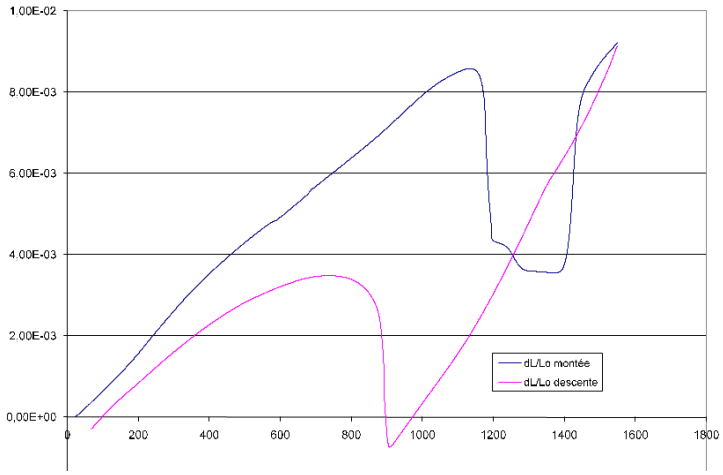
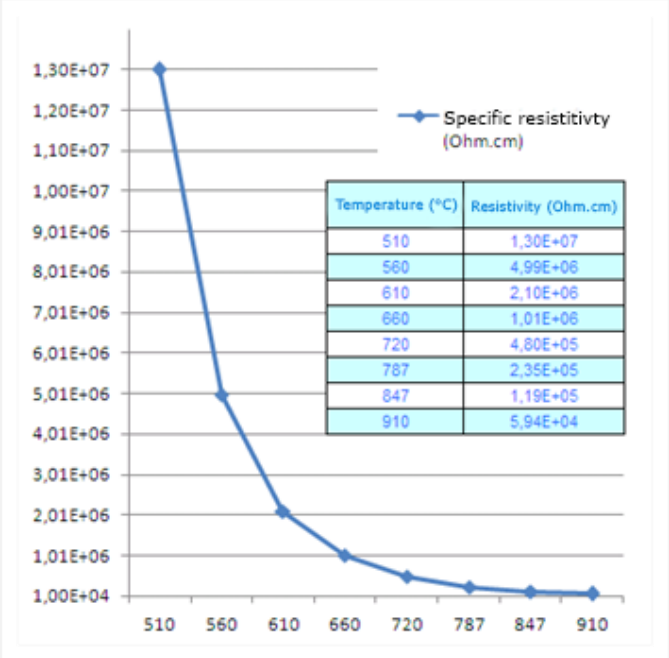
Plan



Thermal expansion curve

- Duration of the test: 18 h
- Thermal cycle: 21 h, 1,550 °C, 67 MPa
- Max expansion: 9,22.10^{-3} mm



Temperature (°C)	Resistivity (Ohm.cm)
510	1,30E+07
560	4,99E+06
610	2,10E+06
660	1,01E+06
720	4,80E+05
787	2,35E+05
847	1,19E+05
910	5,94E+04

Specific resistivity curve