TECHNICAL DATA SHEET

Rev. N° 0 - 25.04.2023

15MS.003
Glassy carbon crucibles

Applications

- Suitable for melting palladium alloys and alloys containing a percentage of noble metals.
- Suitable for precious metals and titanium alloys.
- Not suitable for melting steel alloys or ferrous metals.

Overview

Glassy carbon crucibles don't have the disadvantages of ceramic products such as low thermal conductivity, noble meals adhesion and the use of melting salt. It resists up to 3,000 °C under inert gas or under vacuum. It is twice as resistant at 2,400 °C as at room temperature. The crucible doesn't become brittle at high temperature and tolerates thermal shocks extremely good. Temperature rises followed by repeated cool-downs are not a problem.

The high purity, low specific surface area and isotropic structure of the glassy carbon crucible cause a slight oxidation that generates a protecting gas on the molten metal. This slight oxidation prevents the formation of an oxide coat on the molten metal.

Characteristics

- High thermal strength in inert atmosphere or under vacuum
- High purity
- Good resistance to extreme corrosion
- No open porosity: impermeable to gases and liquids
- Not wet by molten metals
- High hardness
- Low density
- No dust formation on the surface
- Low thermal expansion
- Extreme thermal shocks resistance
- Isotropic structure
- Good electrical conductivity
- Biocompatible

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Range

- Cylindrical crucible
- Evaporation capsule
- Conical crucible (wide and narrow angle)
- Lid
- Crystal's growth crucibles
- Crucible with pouring spout
- Boat

Technical data

Properties	Unit	G Grade
Density	**g/cm³**	1.42
Open porosity	%	0
Peak temperature (under vacuum or inert gas)	**°C**	3,000
Peak temperature (under oxidizing environments)	**°C**	450
Electrical strength	**Ω.µm**	45
Young modulus	**GPa**	35
Flexural strength (4 points)	**MPa**	260
Compressive strength	**MPa**	480
Vickers hardness	**HV**	230
Linear dilatation (20/200 °C)	**10^{-6}.K^{-1}**	2.6
Thermal conductivity	**W.m^{-1}.K^{-1}**	6.3
Permeability coefficient	%	1.10^{-9}

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

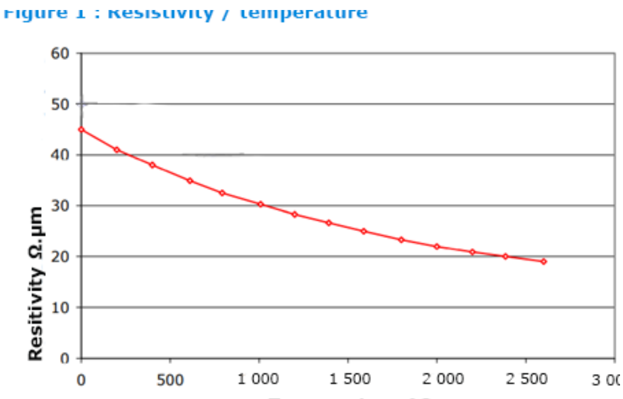

Figure 1: resistivity / temperature

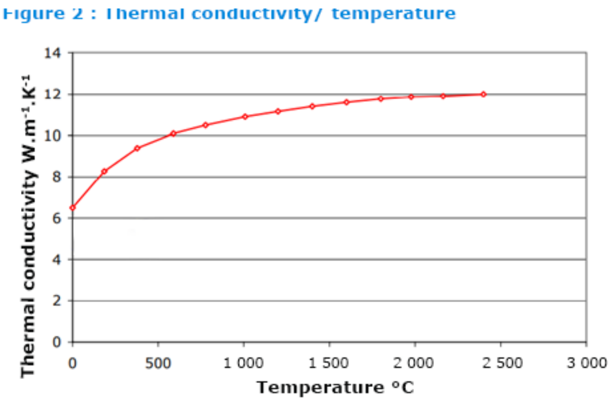

Figure 2: thermal conductivity / temperature

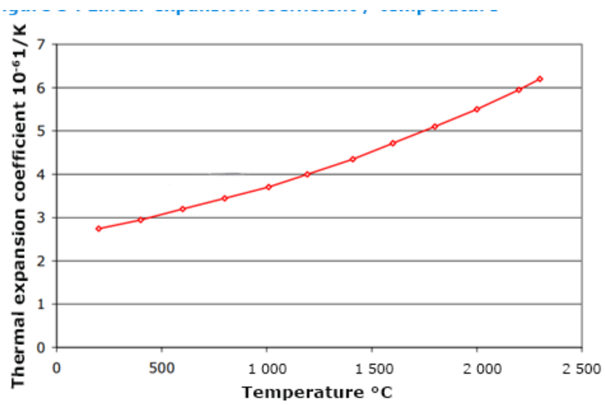

Figure 3: linear dilatation coefficient / temperature

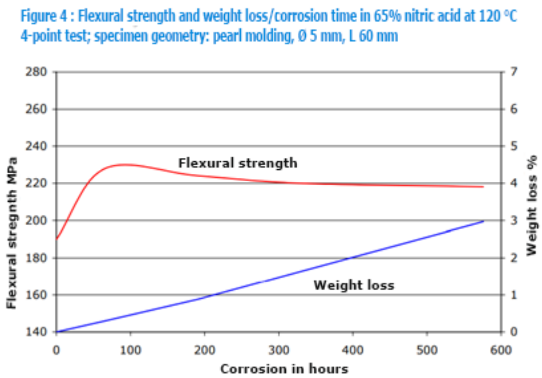

Figure 4: flexural strength and weight loss / corrosion hardness in nitric acid 65 % at 120 °C Test in 4 points; geometry of the specimen: molding in pearl, Ø 5 mm, L 60 mm

Dimensions

Cylindrical crucibles		
Ø (mm)	H (mm)	Vol. (ml)
3.8	5.0	0.020
6.0	3.3	0.025
3.8	10.0	0.045
5.0	8.0	0.095
6.0	14.0	0.15
8.0	12.8	0.22
10.0	12.0	0.28
13.3	14.5	0.6
12.5	20	0.9
14.4	18.2	1.3
15.0	26	3.0
18.6	18.6	2.8
15.9	55.0	5.0
14.3	73.0	6.0
25	37.0	9
20	105.0	15
30	45.0	20
24	101.0	25
36	43.0	27
30	107.0	46
37	80.0	50
41	54.0	50
37.0	80	60
44.0	80	73
41.5	90	80
40	99	91
49	76	102
50	85	127
56	76	150
49	100	141
46	112	141
74	82	300
60	150	330
67	128	350
104	116	790
88	175	920
105	200	1,500
160	280	5,160

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