FINAL ADVANCED MATERIALS

TECHNICAL DATA SHEET

Rev. N° 0 - 25.04.2023

15MS.004
Magnesia crucibles

Applications

- Alloys with nickel
- Plutonium and uranium refining
- Ceramic materials supraconductor
- Treatment of piezoelectric materials

Overview

Magnesia crucibles, MgO, have a structure with thin grains and a slight open porosity. They offer a good mechanical and thermal strength (up to 2,000 °C), however they are less resistant to thermal shocks then other crucibles suggested. Homogeneous heating and cooling are necessary to preserve the product.

The composition of the crucibles includes 2 % of yttrium oxide (Y_2O_3). This addition enables to ease the magnesia sintering. Yttrium oxide is completely inert and behaves as the similarly as magnesia in every application.

Characteristics

- Thermal resistance
- Open porosity
- High purity
- Good mechanical strength
- Sensitive to thermal shock
  - Maximal heating or cooling speed: 200 °C/h
- Better chemical strength then alumina in some applications
- Perovskite structure
- Resistant to lead

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15MS.004
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Range

- Cylindrical crucible
- Rectangular burning tank
- Squared burning tank
- Circular burning tank
- Flange cover

Technical data

Properties		Unit	Magnesia
Density		**g/cm³**	3,40 – 3,45
Open porosity		%	<1
Peak temperature		**°C**	2,200
Composition	**$MgO + Y_2O_3$**	%	98.5
	CaO		0.5
	SiO_2		0.1
	Al_2O_3		0.5
	Fe_2O_3		0.06
	B_2O_3		< 0.002

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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Dimensions

Crucible with flat bottom		
Ø (mm)	H (mm)	Vol. (ml)
6.096	5.08	0.05
10.16	20.066	0.5
12.7	25.4	1
18.034	39.878	5
19.05	25.4	4
25.4	25.4	7
25.4	31.75	9
25.4	76.2	24
31.75	31.75	15
31.75	50.8	25
31.75	63.5	31
31.75	152.4	77
38.1	50.8	38
38.1	76.2	59
44.45	63.5	70
44.45	88.9	99
50.8	50.8	75
50.8	88.9	135
50.8	127	195
50.8	152.4	234
57.15	88.9	176
63.5	76.2	189
63.5	139.7	354
69.85	88.9	264
76.2	76.2	272
76.2	101.6	368
76.2	146.05	534
88.9	152.4	782
101.6	114.3	777
101.6	152.4	1,044
114.3	152.4	1,343
127	127	1,394
127	203.2	2,254

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Round trays		
Ø (mm)	H (mm)	Vol. (ml)
25.4	12.7	3
50.8	12.7	15
50.8	25.4	35
76.2	12.7	34
76.2	25.4	82
101.6	12.7	64
101.6	25.4	153
152.4	25.4	349
152.4	31.75	453

Rectangular trays		
L (mm)	l (mm)	H (mm)
25.4	101.6	12.7
25.4	152.4	12.7
50.8	50.8	12.7
50.8	76.2	12.7
50.8	101.6	12.7
63.5	101.6	12.7
63.5	101.6	25.4
63.5	152.4	25.4
76.2	152.4	25.4
88.9	152.4	25.4
101.6	101.6	25.4
101.6	152.4	25.4

Wall thickness from2.5 to 4 mm according to the crucible diameter.

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