


Zirconia Crucibles, Key Features:

- Resistant to high temperatures
- Excellent erosion resistance
- Increased productivity
- Cleaner melts
- Ideal for the melting of Platinum/PGM
- Ideal for the melting of Nickel/Cobalt based super alloys.

ISO-Zirconia Product Range:
ISO-Zirconia M

High fired Magnesia stabilised, good thermal shock resistance and excellent erosion resistance. Mainly used in vacuum furnaces.

ISO-Zirconia C

Calcium stabilised, excellent thermal shock resistance, good erosion resistance. Used for air and vacuum melting.

ISO-Zirconia C2

High fired Calcium stabilised, good thermal shock resistance and good erosion resistance. Used for air and vacuum melting.

ISO-Zirconia Y

High fired Yttria stabilised Zirconia, providing excellent thermal shock resistance.

Dypack-ZM Backing Material

- >90% $ZrO_2 + HfO_2$
- Designed to prevent sintering
- Excellent thermal insulator, resulting in longer crucible life, increased productivity for the caster and cleaner melts.

Dypack-Z Backing Material:

- 65% ZrO_2 , 34% SiO_2
- Suitable for small installations
- Good thermal insulator



Dyson Technical Ceramics™ isostatically pressed Zirconia Crucibles offer resistance to high temperatures, while maintaining excellent erosion resistance. This allows the caster to operate for longer, at higher temperatures, making Zirconia the preferred choice of crucible material for applications such as:

- Platinum/Platinum group metals
- Nickel based super alloys
- Cobalt based super alloys
- Uranium
- Sputter material for hard disk drives

The use of high purity raw materials and Dyson's dedication to quality ensures our products perform well consistently. In addition to this Dyson's efficient manufacturing techniques make sure our clients receive what they need, when needed.

In order to provide quality products Dyson™ delivers materials of the highest quality to the market, competitively priced and backed by the expertise of application

knowledge and the resources of the Research & Development Laboratory in Sheffield.

Product development is both proactive and reactive in that new materials and technologies are constantly reviewed and where appropriate incorporated into the manufacturing facilities. Selection of materials is made by reference to an extensive application database, which, in conjunction with close liaison with end users, provides materials offering optimum performance in terms of cost and operation.

Dyson Technical Ceramics™ manufactures a wide range of crucibles based upon stabilised Zirconia. The properties of the finished product are determined by both the manufacturing method and the choice of the stabilising media.

Oxides of Calcium, Magnesia and Yttria are utilised as stabilising agents and each product is characterised by differing thermal properties.



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	Dyson ISO-Zirconia Material Properties			
	C	C2	M	Y
Apparent Porosity (%)	21.0	19.0	20.6	22.8
Bulk Density (g/ml)	4.37	4.58	4.46	4.49
Chemical Analysis (%)				
SiO ₂	1.25	0.80	0.65	0.90
Fe ₂ O ₃	0.10	0.10	0.15	0.13
Al ₂ O ₃	1.90	0.80	0.85	1.03
CaO	4.05	03.60	0.15	0.42
MgO	0.15	0.26	2.80	0.16
ZrO ₂ +HfO ₂	93.0	94.4	95.5	90.1
Y ₂ O ₃	-	-	-	7.10
Composition (%)				
Cubic Zirconia	65	75	25	75
Monoclinic Zirconia	35	25	75	25

Crucible Backing Material

As Zirconia is an excellent insulator, Dyson™ recommends the use of Dypack-ZM™, Zirconia Backing Material.

Dypack-ZM™ is graded to prevent sintering at temperatures in excess of 1650°C. Dypack-ZM™ consists of >90% ZrO₂ + HfO₂. The insulation properties of Zirconia ensure heat does not quickly dissipate from the crucible, leading to longer crucible life-spans and cleaner melts.

Alternatively, for smaller installations Dyson also recommends the use of our Zircon backing material - Dypack-ZM™.


Zirconia Crucibles - Standard Sizes

REF.	Mid Diameter		Measured Length		Base Profile	Capacity	
	ID	OD	Int. Length	Ext. Length		lbs.	kgs.
M6	41	57	85	100	ROUND	1.6	0.7
M6L	41	57	121	136	ROUND	2.4	1.1
M2	48	60	100	130	ROUND	3.3	1.5
M5	71	87	138	150	ROUNDED	8.3	3.8
M5L	71	87	188	200	ROUNDED	11.6	5.3
M1	76	94	184	196	ROUND	12.4	5.6
M56	83	97	158	171	ROUND	12.4	5.6
M33	95	115	215	235	ROUND	22.4	10.2
M65	96	116	264	280	ROUND	28.5	12.9
M35	99	115	192	205	ROUNDED	22.9	10.4
M36	100	120	180	200	ROUND	20.4	9.3
M16	103	120	136	149	ROUNDED	17.4	7.9
M16L	103	120	288	300	ROUNDED	37.4	17.0
M46	111	134	146	160	ROUND	19.7	8.9
M20	115	133	226	246	ROUNDED	36.6	16.6
M29B	120	145	267	285	FLAT	47.9	21.8
M26	124	146	254	277	FLAT	48.7	22.1
M23	125	150	230	250	FLAT	44.8	20.4
M97	125	150	315	335	FLAT	61.3	27.9
M97 (CUT)	125	150	310	330	FLAT	60.2	27.4
M95	135	165	352	374	FLAT	79.9	36.3
M95 (CUT)	135	165	282	304	FLAT	63.9	29.0
M25	138	168	259	280	FLAT	61.5	27.9
M205	143	163	310	321	ROUND	72.9	33.1
M111	150	174	345	367	FLAT	96.7	43.9
M28	155	183	266	296	FLAT	79.6	36.2
M114	183	209	360	378	ROUNDED	149.0	67.7
M115	210	237	327	354	ROUNDED	178.3	81.1

Illustration of Base Profiles


Round Internal Base Crucible



Flat Internal Base Crucible



Rounded Internal Base Crucible



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