



**High T
resistant**

**Chemical
inertness**

**Abrasion
resistance**

**Design
freedom**

**Optical
translucency**

Ceramic components for sensors & testing

About Philips

We are...

- Founded in 1891
- Headquartered in Amsterdam, The Netherlands
- One of the largest global diversified industrial companies with sales in 2011 of EUR 22.6 billion
- A multinational workforce of 121,888 employees (January 2012)
- Globally present with manufacturing sites in 100 countries and sales outlets in 100 countries
- An R&D force with expenditures of EUR 1, 6 billion (2011)

About Philips Ceramics Uden

Our core business at Philips Ceramics Uden is the development and manufacturing of translucent ceramics for High Intensity Discharge lamps. These lamps have a unique combination of high quality of light and low energy consumption.

Over the last 10 years Philips Uden invested heavily in the development of new production technologies. Main production technology is now the *Ceramic Injection Molding (CIM)* Technology. The investments in mechanization and CIM Technology, have resulted in a production facility that delivers high quality products against the lowest possible price.

We are able to compete with ceramic suppliers all over the world. With an annual CIM production capacity of over 25 Million translucent ceramic components, we are the largest translucent ceramic injection molding facility in the world.

Over the last years we are expanding our product portfolio towards non Lighting ceramic components. The technology developed over the past 40 years in ceramic processing is now being used for new products and developments in the fields of high quality ceramics.



Crucibles & Tubes

Philips Lighting Uden has developed a unique combination of highest light transmission quality and lowest cost of ownership for manufacturing of translucent ceramics for lighting products. These advantages are now applied in our crucible manufacturing process.

As our products are sintered at very high temperatures (>1900 °C) under reducing conditions, the properties of our alumina material are almost identical to Sapphire. A benchmark of our crucibles with standard products on the market reveals:

- The base material we use is purest in the market (purity > 99.99%).
- Due to our high CIM production volumes and our 100% test based quality systems we are able to deliver crucibles at the lowest possible price with the highest quality.
- The high purity aluminium oxide is more chemically inert, corrosion and scratch resistant preventing any contamination or reaction in all kind of Laboratory applications and experiments.
- Because of the total absence of open pores in our alumina it can meet specifications of 100% sapphire crucibles at a price level below standard alumina crucibles!
- The high heat conductivity due to our special production process (sintering at very high temperatures under reducing conditions) benefits the accuracy of thermal measurements.

Our current **portfolio** inhabits different sizes of crucibles for the most common thermo analytical measurements and exactly fit the dimensions of the analytical device suppliers.

The Ceramic Injection Molding Technology of Philips enables development and manufacture, on client demand with a wide geometry range of products. **Table 1** show a part of our existing crucible portfolio comprising sizes for direct delivery.

Poly Crystalline Sapphire crucibles



Table 1: Poly Crystalline Sapphire Crucibles

	Ordering Code	D (mm)	H [mm]	
PC Sapphire Crucible (30µl)	8222 301 0018.1	6.0	2.6	ME-51140843 201-54321
PC Sapphire Crucible (40µl)	8222 301 0021.1	5.0	4	
PC Sapphire Crucible (70µl)	8222 301 0014.1	6.0	4.5	TA 960070.901
PC Sapphire Crucible (90µl)	8222 301 0024.2	6.5	4.5	ME-00024123
PC Sapphire Crucible (80µl)	8222 301 0020.1	5.0	8	DSC
PC Sapphire Crucible (85µl)	8222 301 0022.1	6.8	4	NE-399972
PC Sapphire Crucible (150µl)	8222 301 0017.1	8.0	4.5	ME-00024124
PC Sapphire Crucible (400µl)	8222 301 0023.1	8.0	12	
PC Sapphire Crucible (850µl)	8222 301 0019.1	12.0	10	ME-51119960

Some thermo analytical measurements need lids or even a rod (Dilatometer for density measurements of liquid metals) **Table 2** shows the lids and rods compatible with crucibles in our portfolio.



Table 2

	Ordering Code	D (mm)	H [mm]	
PC Sapphire Lid (5,0)	8222 301 0027.1	5		
PC Sapphire Lid (6,0)	8222 301 0015.1	6		
PC Sapphire Lid (6,5)	8222 301 0029.1	6.5		
PC Sapphire Lid (6,8)	8222 301 0028.1	6.8		
PC Sapphire Lid (8,0)	8222 301 0025.1	8		
PC Sapphire Lid (12,0)	8222 301 0026.1	12		
		D (mm)	H [mm]	
PC Sapphire rod	8222 301 00511	6.8	8	
PC Sapphire rod	8222 301 00521	3.9	8	

The standard on the market available Alumina crucibles are also part of our portfolio. Matching lids or rods available on request.



Table 3: Standard Al₂O₃ (white) Crucibles

	Ordering Code	D (mm)	H [mm]	
Al ₂ O ₃ Crucible (30µl)	8222 301 00421	6.0	2.6	
Al ₂ O ₃ Crucible (40µl)	8222 301 00431	5.0	4	
Al ₂ O ₃ Crucible (70µl)	8222 301 00441	6.0	4.5	
Al ₂ O ₃ Crucible (90µl)	8222 301 00451	6.5	4.5	
Al ₂ O ₃ Crucible (80µl)	8222 301 00461	5.0	8	
Al ₂ O ₃ Crucible (85µl)	8222 301 00471	6.8	4	
Al ₂ O ₃ Crucible (150µl)	8222 301 00481	8.0	4.5	
Al ₂ O ₃ Crucible (400µl)	8222 301 00491	8.0	12	
Al ₂ O ₃ Crucible (850µl)	8222 301 00501	12.0	10	

Tubes and rods:

Extrusion of alumina tubes and rods are one of our core technologies massively used in lighting products. The special Philips drying process after extrusion enables us to produce tubes and rods with highest accuracy in radial dimensions. A wide range of porosities for the tubes and rods up to fully dense, can be delivered on client request.



Table 4

Tube sizing range	D out (mm)	D in (mm)	Length (mm)	
	0,72 - 18,50	0,35 - 16,78	0 - 1000	

Other products:

Our injection moulding technology enables us to produce large volumes at a relative low cost, with high accuracy and a high freedom of design. The translucent alumina is none porous and chemically inert which makes it suitable for many applications where the material need to withstand severe circumstances and heat. We have a large R&D centre that works together with the customer thus developing the best result at the lowest cost possible.



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