

→ HalFoam



## HalFoam – fibre free ceramic foams

HalFoam is our brand for fibre free ceramic foam materials made of aluminium oxide or silicon dioxide. Unlike ceramic fibre boards our HalFoam products do not contain any fibre components. HalFoam is fully EHS compliant. There are no harmful dusts during machining or handling of the material.

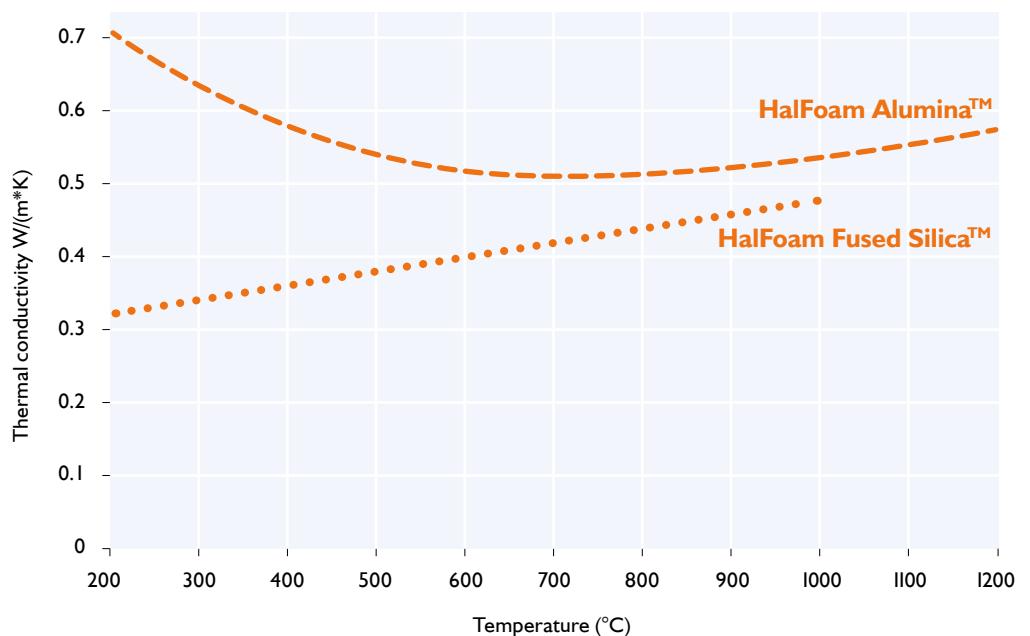
Our environmentally friendly foaming process allows a very high and homogeneous porosity. HalFoam is characterised by the following properties:

- Low thermal conductivity
- Excellent refractoriness
- High material-specific corrosion resistance
- Very good thermal shock behaviour
- High mechanical strength
- Low specific weight

We provide boards and blocks in sizes up to 1,500 cm<sup>2</sup> with thickness available between 0.5 to 20 cm, or moulded parts tailored exactly to your needs. Customised dimensions, e.g. bores, chamfers, tongue and groove, can be realised as well as individual tolerance requirements with shaping and/or hard machining.

HalFoam Alumina™ and HalFoam Fused Silica™ offer a tailored combination of thermal insulation, mechanical strength and chemical stability for high temperature applications. The chart shows the low thermal conductivity of our ceramic foams in relation to the application temperature.

### Thermal conductivity

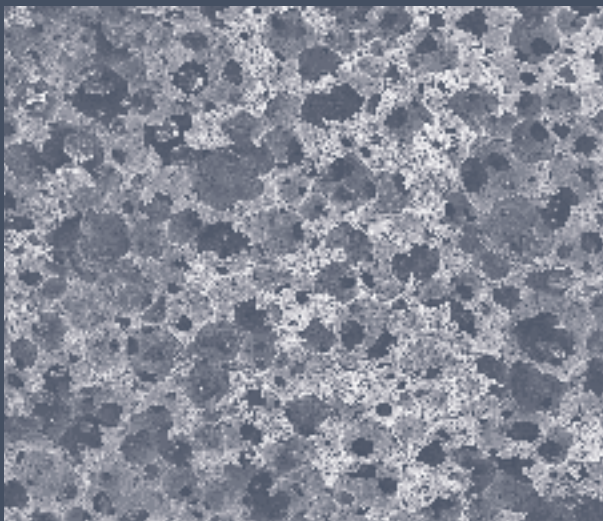


# Physical properties

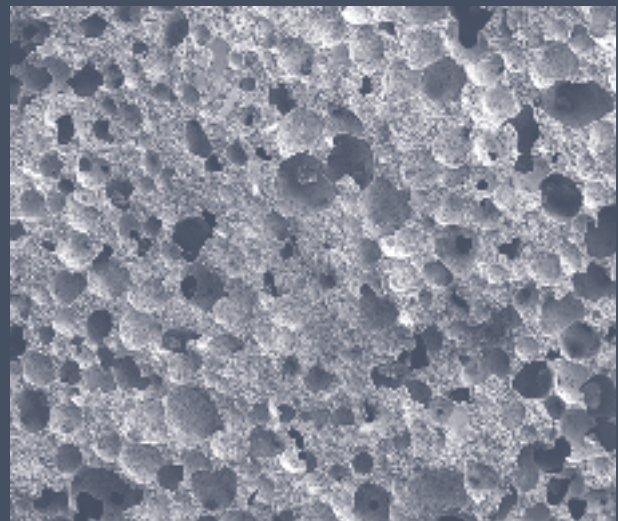
Property		Unit	HalFoam Alumina™	HalFoam Fused Silica™
GENERAL	Major components	wt. %	98.5 Al <sub>2</sub> O <sub>3</sub>	85 SiO <sub>2</sub>
	Bulk density acc. to DIN EN 1094-4	$\frac{g}{cm^3}$	0.6	0.85
	Porosity acc. to DIN EN 1094-4	Vol.-%	80	70
	Medium pore size	μm	150–250	150–200
MECHANICAL	Average flexural strength at 20°C acc. to DIN EN 993-6	MPa	3.5	1.5
	Average cold crushing strength at 20°C acc. to DIN EN ISO 8895	MPa	5	2
THERMAL	Thermal conductivity acc. to DIN EN ISO 8894-1 Hot wire	$\frac{W}{mK}$	0.55 at 1000°C 0.57 at 1200°C	0.35 at 400°C 0.45 at 800°C
	Service temperature	°C	1680	850
	Max. short term temperature	°C	1700	1000
	Specific heat capacity at 1000°C	$\frac{J}{kgK}$	1200	–
	Permanent linear shrinkage 24hrs at 1700°C acc. to DIN EN 1094-3/6	%	-0.8	–

The physical and chemical values specified above have been determined acc. to standard DIN-EN 60672 and are applicable for the standard test specimens described in this norm. Given the material-specific properties of ceramic materials these values may not be applied directly to components deviating from the norm in size and shape. The values specified above do not constitute warranted properties as defined by law.

## Microstructures



HalFoam Alumina™



HalFoam Fused Silica™



**Morgan Advanced Materials Haldenwanger**

has developed from its foundation in 1865 to become one of the world's leading manufacturers of high-tech ceramics. We offer you an extensive range of products made of oxide and non-oxide materials, which are primarily used in demanding thermal, chemical or even mechanical applications. Thanks to our wealth of expertise in ceramics, we serve you not only as a supplier, but also as a reliable partner in developing **solutions for your challenges.**

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