

→ HalFoam



# HalFoam – Durable Ceramic Foams for Use in Harsh Conditions

HalFoam is our brand for fibre free ceramic foam materials made of aluminium oxide or silicon dioxide. Our foaming process allows a very high and homogeneous porosity for a reliable quality under harsh conditions.

- **Excellent Thermal Insulation**  
Outstanding thermal insulation properties minimising heat transfer. HalFoam acts as an effective barrier, preventing unwanted heat loss and optimising energy efficiency in all kind of applications.
- **Lightweight and Durable**  
The foam structure allows the perfect balance of strength and weight. HalFoam products are lightweight yet incredibly durable, offering longevity without compromising on structural integrity.
- **Environmentally and EHS Friendly**  
With our own invented and eco-friendly Halfoam production method, we contribute to sustainable practices, aligning with the global push towards a cleaner, greener future. There are no harmful dusts during machining or handling of the material.
- **Variety of Dimensions & Geometries**  
Customised dimensions, e.g. bores, chamfers, tongue and groove, can be realised as well as individual tolerance requirements with shaping and/or hard machining.

	Physical properties	Unit	HalFoam Alumina™	HalFoam Fused Silica™
GENERAL	Major components	wt. %	98.5 Al <sub>2</sub> O <sub>3</sub>	95 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 for HalFoam Fused Silica acc. to DIN EN 821-2 Laser Flash for HalFoam Alumina	$\frac{W}{mK}$	0.47 at 1200°C 0.57 at 1500°C 0.71 at 1600°C	0.40 at 600°C 0.46 at 800°C 0.48 at 1000°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	–
	Dimensions max. typical	l x w x h mm	200 x 300 x 100 bricks NFI	300 x 500 x 200 boards and bricks

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.

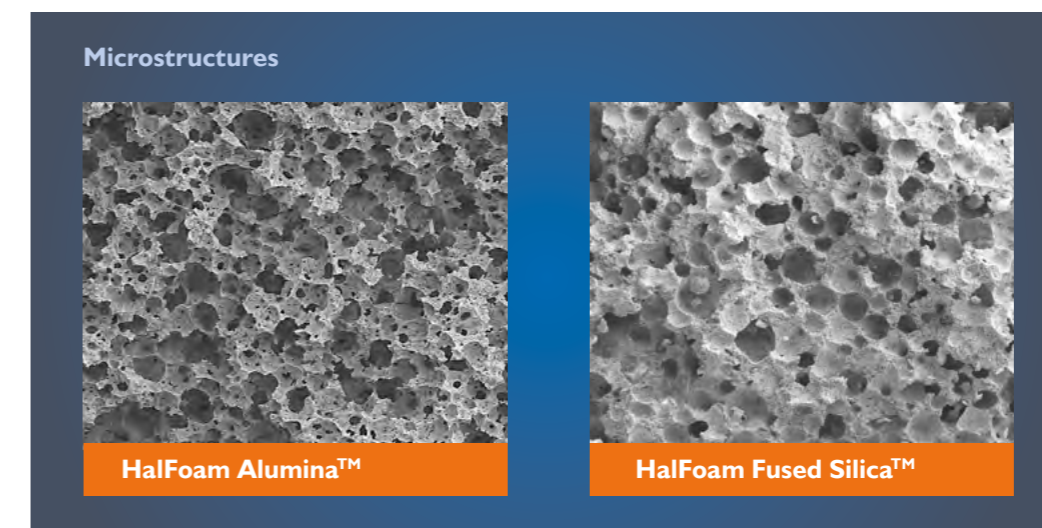
## HalFoam Alumina™

- **Inert to Corrosion**  
HalFoam Alumina is inherently inert to chemical reactions, making it a robust choice for applications involving hydrogen, alkali and carbon-monoxide atmospheres. This corrosion resistance ensures prolonged equipment life and reduces maintenance costs.
- **Outstanding Thermal Stability**  
HalFoam Alumina boasts exceptional resistance to high temperatures, ensuring stability and reliability in harsh environments up to 1700°C.

Physical properties	Fibre Materials (PCW/ ASW)	HalFoam Alumina™	Insulating Firebricks (IFB)
Thermal Insulation	★★★★★	★★★★★	★★
Mechanical Strength	★★★	★★★★★	★★
Refractoriness	★★★	★★★★★	★★
Hydrogen Resistance	★	★★★★★	★★
Carbon Monoxide Resistance	★★	★★★★★	★★★
Alkali Resistance	★★	★★★★★	★★★

## HalFoam Fused Silica™

- **Low Thermal Shock and Minimal Thermal Expansion**  
HalFoam Fused Silica offers excellent thermoshock properties up to 1000°C due to its low thermal expansion. Sharp heating and cooling ramps are possible with our material. You can benefit from faster and safer processes.



**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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