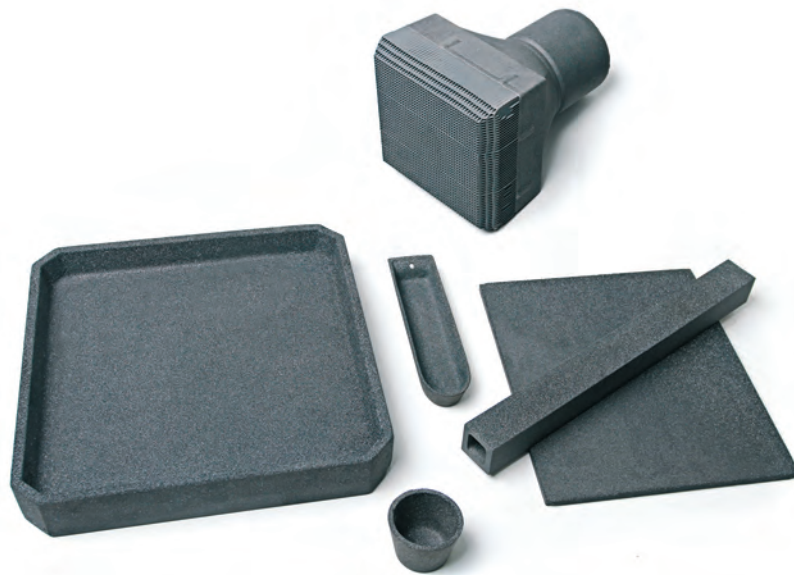


LiqTech

KEEPS THE SKY BLUE

Recrystallized Silicon Carbide **KILN FURNITURE**



Manufactured and developed in Denmark

Who we are

Liqtech is a manufacturing company based in Denmark and the US and is a leader in developing and producing a wide variety of Recrystallized Silicon Carbide (RSiC) applications for filtration purposes and kiln furniture. For more than ten years, Liqtech has gained extensive know-how through focusing solely on its core competences which is to manufacture RSiC and nothing else.

The RSiC Kiln Furniture line has been developed in cooperation with a consultant team with more than 30 years of experience in the refractory field, to ensure that quality is state of the art.

With six running furnaces that are up to 2 meters long, Liqtech has a current production capacity of **400,000 kg** RSiC parts per year.



What we do best:

- **High quality**

Liqtech is a high-end RSiC producer with a commitment to continuously improve quality and processes in order to deliver high quality applications. Our quality is continuously monitored through a SEM, bending-strength and porosity.

- **Technical support**

Liqtech has huge production capability and are

always available for supporting even the most challenging requests from the customers.

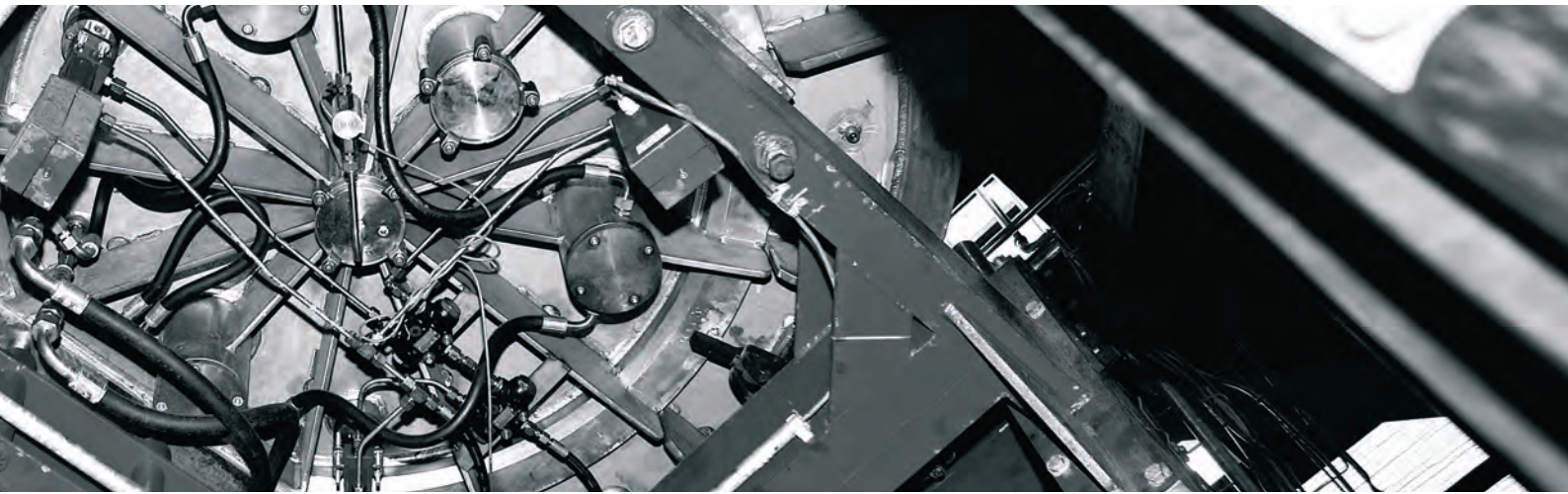
- **Service and fast delivery**

Liqtech takes pride in providing an excellent service. This is expressed through competitive prices, cost effectiveness, flexibility, no minimum order quantity and fast delivery. Moreover, we are always available and provide fast response to the customer.



Features of Liqtech's RSiC products:

- Excellent thermal shock characteristics
- Lower mass = faster firing cycles and lower firing costs
- Strong bonding of coatings
- Resistant against strong acids and alkaline solutions
- Excellent oxidation resistance
- Custom designs to suit your specific needs



Industries

- Sanitary ware
- Artware and pottery
- Tableware
- Artware and pottery
- Refractory ceramics
- Mineral processing
- Industrial process heating
- Technical ceramics
- Filtration
- Others



Physical properties of Liqtech RSiC		
	RSiC	RSiC SE
Maximum use temperature		
Oxidising atmosphere	1600°C	1620°C
Inert atmosphere	2300°C	NA
Bending strength ¹		
@ 20°C	80-100 Mpa	80-100 Mpa
@ 1100°C	100-110 Mpa	100-110 Mpa
Porosity ²		
	15-17%	15-17%
Density		
@ 20°C	2,7 g/cc	2,7 g/cc
Thermal shock resistance		
	Very good	Very good
Modulus of elasticity		
@ 20°C	280 GPa	280 GPa
Thermal Conductivity		
W/mk @ 1200 °C	26	26
Coefficient of Thermal expansion		
	4.8*10 ⁻⁶ / °C	4.8*10 ⁻⁶ / °C
SiC content		
	>99%	>99%
PH resistance		
	1-14	1-14
<p><i>1) 4 - point bending test average value according to DIN 5110</i></p> <p><i>2) Determination of density and porosity according to DIN 51918 (Archimedes' principle)</i></p> <p><i>The properties stated above are derived from test specimens.</i></p>		

RSiC SE

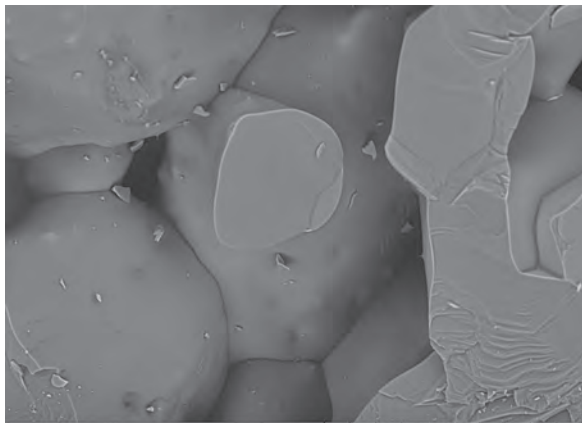
RSiC special engobe is a chemically coated product that prolongs the service life of the RSiC through an improved oxidation resistance and enables a higher use temperature.



Vapor-phase sintering

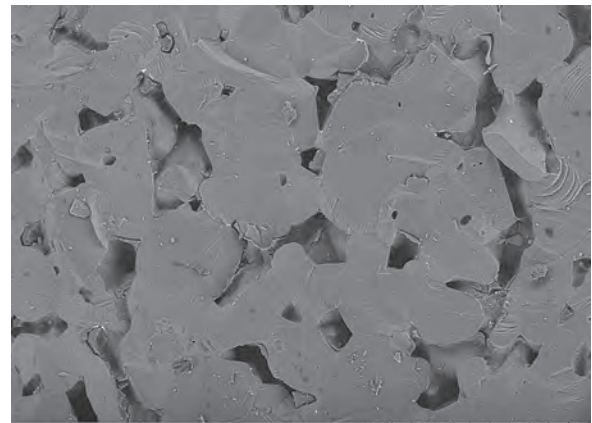
Recrystallized silicon carbide was the first advanced silicon carbide material to be used extensively for kiln furniture. RSiC components are produced by firing a slip-casted green body formed from a mixture of various sizes of SiC particles at a temperature sufficiently high to cause vaporization of the finest particles.

Upon cooling, the SiC vapor condenses on the large grains and are thereby joined together (recrystallization). The result of this process can be seen below on the SEM photos. The bonding of the particles is so strong that a break through the RSiC body occurs through the grains and not around them.



LiqTech x1.0k 100 um

RSiC structure 1.000x magnification. SEM photo of Liqtech's slip casted RSiC, with its characteristic compact SiC matrix.



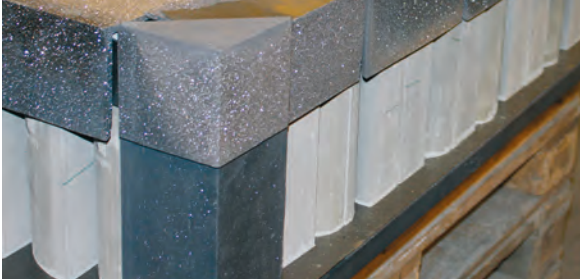
LiqTech x250 300 um

RSiC structure 250x magnification. SEM photo of Liqtech's slip casted RSiC cross section, with its characteristic compact SiC matrix.



RSiC parts

Liqtech supplies a large variety of RSiC parts used as kiln furniture or furnace constructions. Products can be coated by demand and mechanically machined to meet tight tolerances before and after firing.



RSiC kiln furniture protection for DPF firings at 2400° C. RSiC kiln furniture has lowered firing scrap rate significantly by shifting from carbon to RSiC kiln furniture.



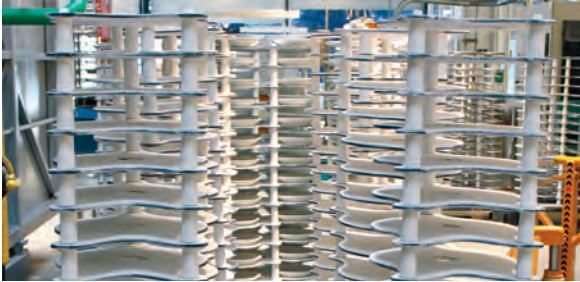
Triangular RSiC bottom plates for SiC firings - provides excellent homogenous heat distribution throughout the parts.



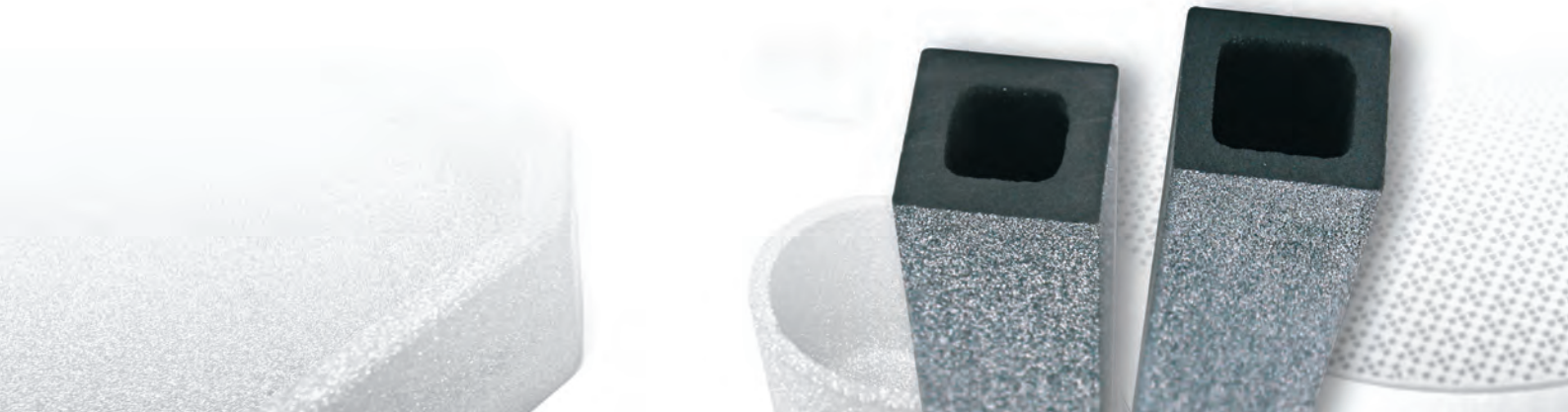
Special RSiC setters with coating for firing porcelain.



Coated RSiC plates in rack for firing porcelain.



RSiC setters with coating for firing porcelain.



Product line

Design assistance is available for these products. We have an extensive in-house furnace know-how available for servicing your needs.

Setters

Setters are increasingly used in the porcelain industry. These can be delivered in lengths up to 500 mm, moreover, setters can be coated with oxide ceramics on both or one side in order to achieve a better oxidation resistance.

Beams and Rollers

Beams are used as supports when firing ceramic components - e.g. sanitary ware, insulators and porcelain due to its high load-bearing capacity. Our furnaces can fit beams and rollers up to 2 meters long. Rollers can be used in roller kilns in temperatures up to 1620° C. in highly-oxidizing atmospheres.

Saggers

Primarily with the purpose of firing grinding media, powders or for other products at temperatures up to 1620° C. Besides the high temperature capability of RSiC, it is also chemically inert and will not react with other gases. Saggers can be produced in almost any shape and size and can also be produced with a lid if needed.

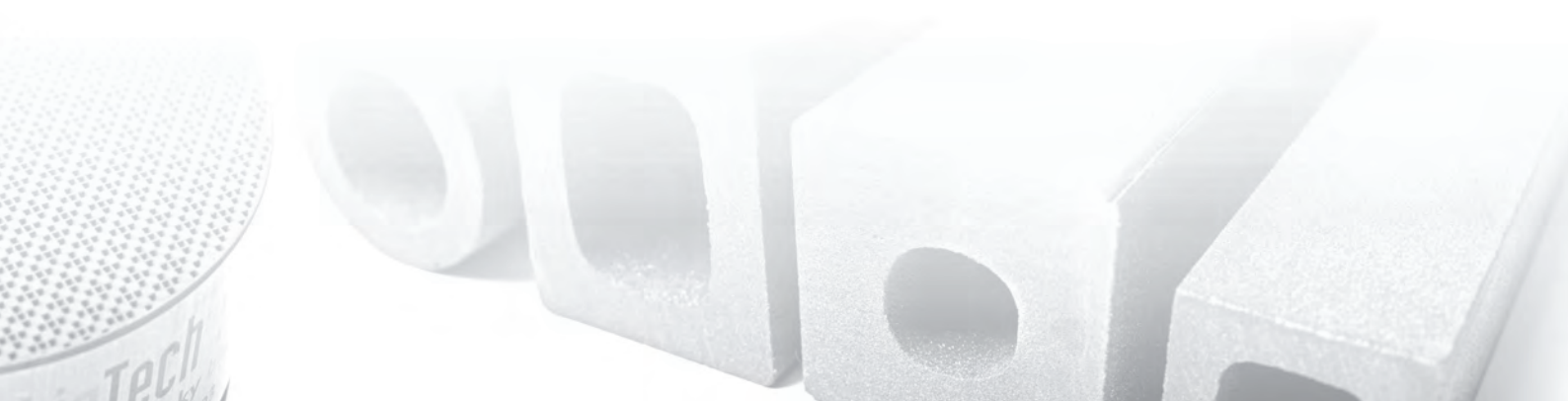
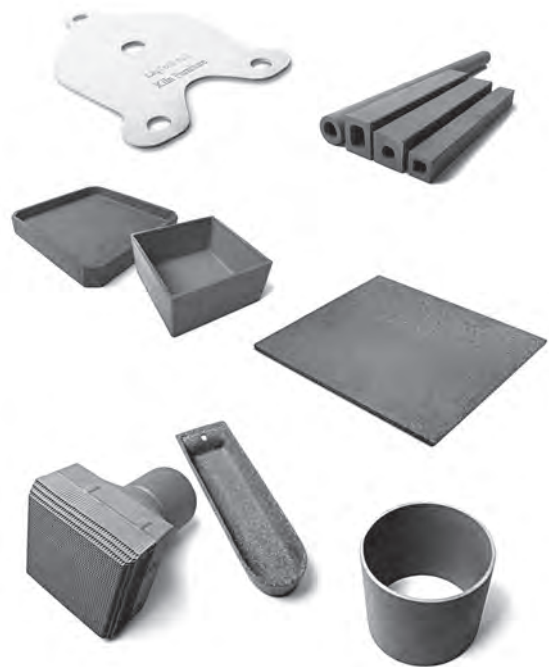
Plates

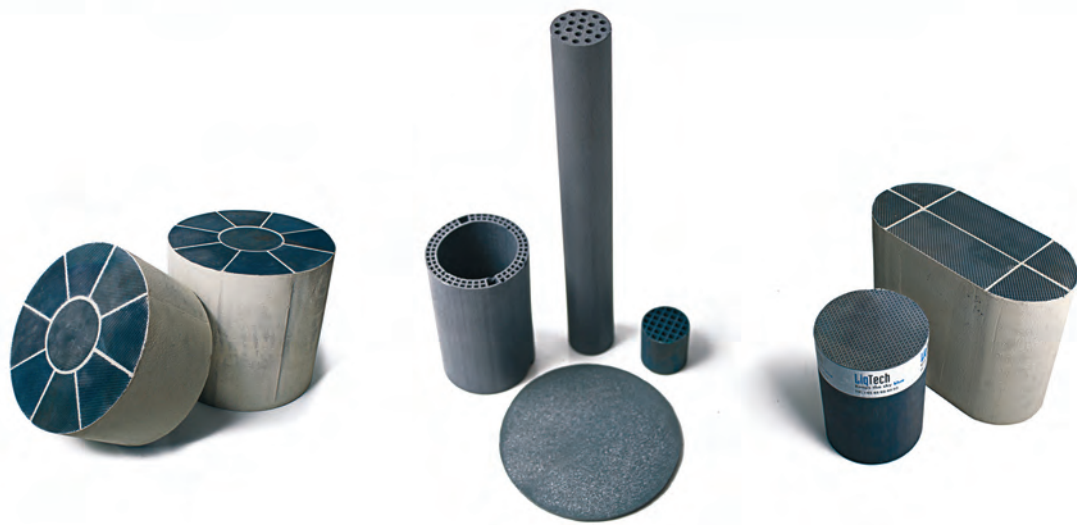
Our plates are produced with excellent dimensional stability and are especially suitable for fast-firing cycles due to its high thermal conductivity. If needed, plates can be delivered with coating on one or both sides to improve oxidation resistance. Plates can be produced up to 500x700 mm and between 2-15 mm thickness, depending on size of plate and application.

Special parts

In addition to our standard shapes, we also supply a large variety of special parts in RSiC. These are used in applications such as solar receivers, burners, heat pipes and other high temperature applications. Additionally, for applications that require resistance against high mechanical strength, corrosion, thermal shock or abrasion.

Our RSiC parts can also be used for filtration purposes given that we are able to increase the porosity and permeability according to need.





We also manufacture RSiC for water and diesel filtration

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