

COMPETENCE IN

# Technical Ceramics Kiln Furniture

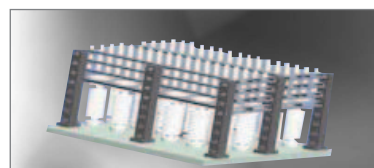
Kiln  
Furniture

Leveraging on its expertise in designing, composing, shaping and firing ceramics, Imerys Kiln Furniture is developing technical ceramics kiln furniture solutions for a wide range of industries.

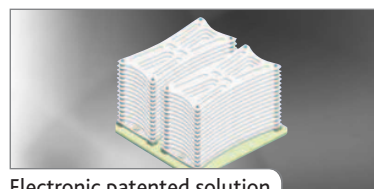
Our large portfolio of high quality body compositions (silicon carbide, cordierite, mullite and alumina) is a strong base to supply you with tailored kiln furniture solutions.

Below are some examples of kiln furniture solutions we have brought to the industry. Do not hesitate to contact us with your challenges!

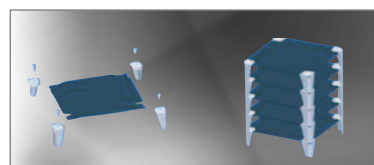
## Our solutions



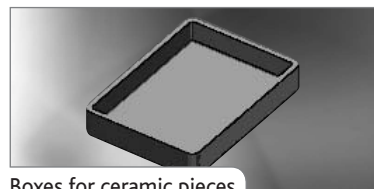
HV insulators solution



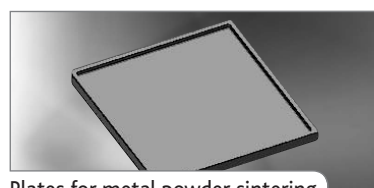
Electronic patented solution



Ceramic firing patented solution



Boxes for ceramic pieces



Plates for metal powder sintering

Industries	Challenges	Solutions Developed
<b>High Voltage Insulators</b>	Support a wide range of hard porcelain pieces up to 1,400°C, some of them being very heavy. Ensure a high degree of compactness	Based on our Aptasinit composition (Nitride bonded Silicon Carbide) a full kiln furniture system has been designed and successfully implemented
<b>Electronic Components (e.g.: MLCC, Ferrites...)</b>	Provide a light, high temperature and mechanical resistant system, with easy assembling and handling properties that allows a high degree of compactness (possibility to load the kiln with a high number of pieces to be fired)	Patented solution : Butterfly mullite stackable systems (3 mm thickness) with screw mullite feet, ensuring a very easy and safe handling, along with a high degree of compactness
<b>Sintered Metal Powder Pieces for various applications: watches, bioscience, automotive...</b>	Support high value added metal parts during their sintering, without contaminating them. These supports must resist to a large number of firing cycles	Plates with very accurate geometrical dimensions and from different materials to ensure a high life-time and a good compatibility with the type of metal. e.g.: <ul style="list-style-type: none"><li>• Zirconia for titanium pieces</li><li>• Alumina for tungsten pieces</li></ul>
<b>Ceramic pieces for automotive (e.g.: spark-plugs, DPF) and process industry (e.g.: grinding balls)...</b>	Contain ceramic pieces during their firing at high temperature avoiding any contamination	Patented solution : A RSiC-Mullite composite has been developed to stack RSiC (SC 100RG) on mullite feet with screw connections (Thermomull 04). Boxes with very precise dimensions and from different materials to fit the customers' requirements. e.g.: <ul style="list-style-type: none"><li>• Recrystallized SiC boxes for grinding balls</li><li>• Mullite boxes for spark-plugs</li></ul>

# Adequate compositions for Technical Ceramics Kiln Furniture

**Cordierite** is a major component of Cordierite-Mullite kiln furniture. It has an extremely low coefficient of thermal expansion explaining the outstanding thermal shock resistance of these kiln furniture materials. The controlled combination of Mullite, as a high temperature resistant mineral and Cordierite, enables tailoring of material characteristics for a wide variety of firing profiles and application temperatures.

Characteristics	Materials
<ul style="list-style-type: none"> <li>• High thermal shock resistance</li> <li>• High creep resistance high, mechanical resistance</li> <li>• Typical products: Batts, Supports</li> </ul>	S-CORIT A S-CORIT SR APTAKORIT CM1 APTAKORIT CME S-CORIT B APTAKORIT MH CORMULL C1 CORMULL C1E APTAKORIT HT

**Mullite** in combination with Corundum, is widely used as kiln furniture in the ceramic industry. A wide variety of Mullite-Corundum kiln furniture materials is commercially available, applied for firing ceramics in temperatures ranging from 1,380°C up to 1,700°C. We combine acute raw material selection and precise processing to produce kiln furniture materials with highest performances for standard and special applications.

Characteristics	Materials
<ul style="list-style-type: none"> <li>• Typical products: Batts, Pusher Batts, Box Saggars</li> </ul>	APTAKOR 80 APTAKOR 85 APTAKOR 99
<ul style="list-style-type: none"> <li>• Typical products: Batts, Box Saggars and Supports for Electronics</li> </ul>	THERMOMULL 04 APTAKOR 99G APTAMULL 86F

**Silicon carbide** products are developed to meet customers' needs. The use of high purity raw materials and precise process parameters ensure a high quality and consistency of IKF materials: high strength, even at high temperatures, low thermal expansion, very high thermal conductivity, corrosion resistance under highest temperatures, very high hardness and resistance to wear.

Recommendation	Main application	Materials
<b>Recrystallized SiC</b> The outstanding creep resistance at high temperatures allows heavy loads up to 1,750°C depending on atmosphere	Kiln Furniture Superstructures for Insulators and Technical Ceramics	SC 100 RG
<b>Nitride bonded SiC</b> The outstanding creep resistance at high temperatures allows heavy loads up to 1,550°C. Aptasinit provides excellent oxidation resistance	Kiln Furniture Superstructures for Insulators	APTASINIT
<b>Silicon infiltrated SiC</b> The outstanding creep resistance at high temperatures allows heavy loads up to 1,350°C	Kiln Furniture Superstructures for Burner Tubes	SC 90 S SC 90 GB
<b>Sintered SiC</b> The outstanding creep and oxidation resistance at high temperatures allows heavy loads (above 1,750°C) in protective atmosphere	High Temperature Kiln Furniture Superstructures for Technical Ceramics and Burner Tubes	SC 100 SG



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