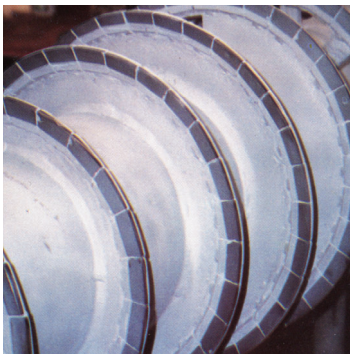


K-SIL

Silicon Carbide Ceramic Lining Systems



Key Benefits

- Excellent abrasion and corrosion resistance
- High thermal shock characteristics
- Engineering manufacturing tolerances
- Monolithic assemblies

K-SIL has excellent resistance to abrasion and corrosion with high resistance to thermal shock. Two forms of K-SIL are available, both of which may be cast or machined to suit the application.

Manufacture

K-SIL is manufactured from mixing a blend of granular silicon carbide with both permanent and temporary bonding agents, which are milled and dried to achieve a homogenous microstructure. The prepared material is then either slip cast or pressed to produce both simple or complex shapes which are placed into a batch kiln and are subject to a controlled firing process where the components are fired up to approx. 1450°C.

During firing, the temporary binders are consumed and a permanent bond develops with very little shrinkage having taken place. The result is a finished product of high tolerance with excellent abrasion, thermal shock and chemical resistance.

Application

There are many uses for our K-SIL NB (nitride bonded) or RB (reaction bonded) material, we however specialising in the fight against plant and component degradation use the product to enhance the life of capitol equipment.

With its main characteristics being abrasion and thermal shock resistance the applications tend to lean towards plant and equipment that have both of these factors apparent when handling bulk solid materials in either pneumatic or hydraulic states of conveyance.

Forms of supply

Due to the minimal shrinkage takes place during the manufacturing process then virtually any form can be produced be it a flat or three dimensional shape in either a single or multiple piece component ranging from 10mm square to 800mm diameter. These forms can be produced to suit the internal sections of plant and replace components manufactured by original equipment manufacturers (OEM) with a high degree of tolerance that is inherent in its manufacturing process or by machining the component in either its green unfired or fired state.

Typical forms of supply consist of items such as cylinders, nozzles, injectors, frustums and virtually any bespoke wear resistant liner that can be drawn within its size range of manufacture.

Installation

The majority of components manufactured are installed by means of an adhesive used to either hold or support the form in position, alternatively, they are fixed mechanically by means of special anchors, which can be either welded or drilled to the substrate depending on its construction.

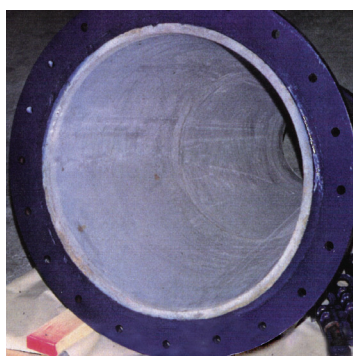
Using K-SIL as a wear part for an equipment manufacturer's machine instead of exotic alloys or castings supplied originally can have substantial benefits in terms of the expense and downtime saved and can be produced with the same degree of tolerance as its replacement to enable it to be fitted in the same manner as its replacement.

As with most wear resistant materials the success of the system often depends on the quality and accuracy of the installation. Before committing to the use of our K-SIL, we recommend consultation takes place with one of our qualified engineers in order to assess its suitability for particular applications.

Should you have a requirement for the product to be installed or form part of a system, then we would welcome the opportunity in discussing your requirements for the design, manufacture, installation and erection of the system using our fully trained staff and workforce, alternatively we will be happy to consult with or supervise your own workforce.

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Typical list of applications

- Attrition mills
- Burners assemblies
- Centrifuges
- Cyclones
- Hyjectors
- Venturis

The information contained on this product information sheet is to be used as guidance only. The advice and technical data given is done so in good faith and does not constitute any warranty or guarantee on product performance or suitability. We hereby reserve the right to change the technical information herewith without notification or prior agreement.

Physical and Mechanical Properties

PARAMETERS	UNIT	K-SIL NB	K-SIL RB
Density	g/cm ³	2.65	3.1
Hardness	Knoop	27	-
	HV	-	3000
Porosity	%	8	-
Compressive strength	Mpa	140	2100
Flexural strength	Mpa	46	210
Young modules	Gpa	-	410
Service temperature	°C	1590	1400
Thermal conductivity 1000°C	W/mk	15.9	200

Chemical Composition

MINERAL CONTENT	APPROXIMATE FIGURES %	
	K-SIL NB	K-SIL RB
SiC	73.0	90
Si ₃ N ₄	21.00	-
SiO ₃	3.0	10
Al ₂ O ₃	2.7	-
Fe ₂ O ₃	0.3	-

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