

K-ALOX

High Alumina Ceramic Lining Systems



Key Benefits

- Excellent abrasion resistance
- Constant operation at elevated temperature
- Low co-efficient of friction
- High manufacturing tolerances achieved

K-ALOX has an excellent rating for resistance to all forms of abrasion, with a hardness of 9 MOHS and the ability to withstand very high operating temperatures. K-ALOX also has excellent resistance to corrosion and chemicals.

Manufacture

The primary material used for the manufacture of our K-ALOX components is calcined alumina of 92% purity which is a by product of the alumina industry. In order to achieve its fine molecular structure it is milled and dried achieving a near submicron powder. It can either be pressed or slipcast into almost any form dependant on size, where it is then fed into a tunnel, shuttle or bell type kiln and subjected to a controlled process of heat treatment reaching temperatures of around 1600°C which results in material with characteristics of extreme abrasion and heat resistance.

Application

The primary use of our K-ALOX material is for the protection of plant against abrasion and erosion when bulk solids or by-products are conveyed or processed by mechanical, pneumatic or hydraulic means. With a hardness rating of 9 on the MOHS hardness scale and able to withstand operating temperatures in excess of 1000°C, K-ALOX is ideally suited to counter both impact and sliding abrasion and erosion within the bulk solids handling or processing industries.

Forms of supply

Many different forms can be produced in thickness ranging from 1.5mm to 75mm either in the production stage or by cutting and machining the components to fit the geometry of the fabrications they are used to line. The majority of shapes produced are either flat tiles or cylinders, however more complex shapes can be produced by a means of pressing and machining.

Installation

The majority of installations are carried out using a range of adhesives with differing characteristics depending on the application. Where adhesives are either not suitable to use or the curing time is not fast enough to support the weight of the component in either a vertical or inverted position then mechanical fixings can be used. Kingfisher can supply a full range of adhesives and mechanical fixings dependant upon the applications.

As with most wear resistant materials the success of the systems often depends on the quality and accuracy of the installation. We recommend consultation takes place with one of our qualified engineers in order to assess the suitability of choosing our K-ALOX material for particular applications. If need be Kingfisher can carry out the installation using its own fully trained work force or supervise your own employees.

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Typical list of applications

- Blenders
- Chutes
- Cyclones
- Fan casings
- Mills
- Mixers
- Pipework
- Screw conveyors
- Separators

Physical and Mechanical Properties

PARAMETERS	UNIT	K-ALOX 92P
Alumina content	%	92
Density	g/cm ³	3.65
Open porosity	%	0
Flexural strength @ 20°C	MN/m ² (MPA)	300
Hardness vickers 2.5	KP/mm ²	1155±80
Hardness	MOHS	9
Thermal conductivity @ 20°C	W/mK	13.5
Thermal expansion (20°C-1000°C)	x110-6/°C	8.2±0.5
Maximum working temp (No Load)	°C	1550

Chemical Composition

MINERAL CONTENT	APPROXIMATE FIGURES %
	K ALOX 92
Al ₂ O ₃	92.0
SiO ₃	3.7
Fe ₂ O ₃	0.3
TiO ₂	0.13
CaO	0.05
MgO	1.4
Na ₂ O	0.4
K ₂ O	0.03

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