Alumax Gold

Alumax Gold Optimised Alumina
a break through in ceramic casting technology. HMA Ceramatech is a market leader in advanced ceramic linings. HMA Ceramatech Alumax Gold is a break through in the wear performance and casting ability of Alumina based ceramics. Alumax Gold is a high performance industrial and scientific ceramic product. It is a high purity, high density, fine-grained alumina of the highest quality and performance - second to none. The material has proven to out perform ISO pressed alumina and can be cast in very large components. No other company in the world can produce components of comparable size. Alumax Gold eliminates the need for alumina tiled components and as such provides increased operating life. Alumax Gold is strong, hard, chemically inert, heat resistant and electrically insulating. Our process allows to manufacture batch runs from a few to a few hundred in simple or intricate shapes, thick or thin, large or small , with very good as-formed tolerances. Prototyping is also a speciality.

Alumax Gold
is used for:
Wear resistant applications in heavy industrial materials handling including, coal fired power station pulverised fuel and ash lines, mining and minerals processing, chemical processing, pipe lines, classifying (sizing), spray nozzles, flow constrictions and valve parts.

High Mechanical & Dielectric Strength
Electrical Insulators are used in:
Electrostatic precipitators, emission control systems, heater supports.

Alumax Gold Cast Monolithic linings
Our cast Alumax can be used in all pipe lining applications from straight pipes and bends to reducers, tee's and Y pieces. The elimination of tile joints provides increased operating life.
Alumax can be cast in a wide variety of wall thicknesses and diameters and can be used in conjunction with CT ISO Pressed alumina tiles to offer a multitude of lining solutions.
Alumax Gold monolithic technology is revolutionising ceramic pipe linings.

We specialise in high purity, high density, fine-grained alumina of the highest quality and performance.

Alumax Gold

PHYSICAL PROPERTIES

Alumina content = 98.6-99.8%
SiO2 = 0.02%, MgO = 0.01%, CaO = 0.06% + other trace elements

Typical Physical Properties	Unit	Value
Density	$g.cm^{-3}$	3.7-3.97
Apparent Porosity	%	<1 (closed)
Grain Size (Average)	µm	3-5
Mechanical Properties		
Young's Modulus of Elasticity	GPa	380
Compressive Strength	MPa	2 900
Tensile Strength	MPa	260
Flexural Strength	MPa	280
Fracture Toughness KIC	MPa	4
Modulus of Rupture	MPa	>350
Hardness	Moh's	9
	Knoop	>2 000
	Vickers (30kg)	>1 450
Thermal Properties		
Heat Capacity	$J.kg^{-1}.K^{-1}$	0.99
Thermal Expansion Coefficient	$106.K^{-1}$	7.7
Thermal Conductivity (200˚C)	$W.m^{-1}.K^{-1}$	25
Thermal Shock Factors	R	90
	R^{1}	2250
	R^{11}	580
Expansion Properties		
Peunittivity/Dielectric Constant (1kHz, 25˚C)		9.9
Loss Tangent(1kHz, 25˚C)		0.0010
Resistivity (25˚C)	Ω.cm	14
Dielectric Breakdown	KV.mm-1	17

Applications:

Alumax Gold is an extremely dense, ceramic material that has remarkable resistance to both sliding and impact abrasion. Alumax Gold has high purity Alumina crystals which are bonded together with a crystalline aluminum silicate that insures that integrity of the ceramic shape after firing. Alumina's chemical inertness provides immunity to corrosive chemical attack.

Alumax Gold ceramic is ideally suited for coal fired power plant and coal mine applications. These include burner nozzles, fuel pipe and bends, pulverised mill cones and housings, exhaust fans housings, fan blades and other high erosion components. Alumax Gold ceramic linings are used in material handling systems for dry materials, slurries and dust-laden gases.

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