

Kemresis

Silicon Carbide Containing Brick

“Superior Silicon Carbide Containing Brick for Safety Zone”

- **Outstanding Resistance to Alkali Infiltration**
- **High Thermal Stress Resistance**

Recommended Installation Area:

Safety Zone (Calcining Zone), where high level of alkali-sulfur infiltration and thermal stress are found

Kemresis: Not only does Silicon Carbide, the specifically selected material, provide Kemresis thermal shock resistance and structure flexibility characteristics but, at 1000°C, it also forms glassy phase coating film covering refractory lining, giving Kemresis the outstanding chemical resistance property.

Infiltration of Chemical: Main Damage Factor of Refractory in Safety Zone (Calcining Zone)



Crack and infiltrated layer at hot face

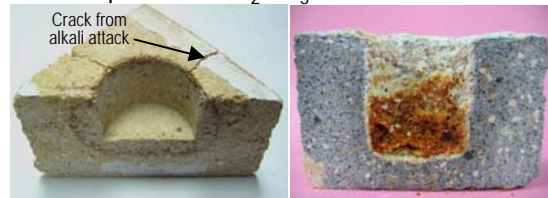
Picture: cut section of used High Alumina Brick

Kemresis has been especially developed in response to the increasing application of AFR* in cement plants which causes chemical infiltration and spalling effect, and, consequently, shorter usage life of bricks in the Safety Zone.

* Alternative Fuel and Raw Materials

Testing results verify Kemresis’s outstanding Chemical Resistance characteristic as compared with other High Alumina bricks

Alkali cup test with K_2CO_3



80% High Alumina Brick

Kemresis

Specifications:

| Physical Properties | (unit) | |
|--|--------------------|---------|
| Bulk Density | kg/m ³ | 2,650.0 |
| Apparent Porosity | % | 14.0 |
| Cold Crushing Strength | kg/cm ² | 600.0 |
| Modulus of Rupture | kg/cm ² | 70.0 |
| Thermal Expansion | | |
| at 400°C | % | 0.20 |
| at 1000°C | % | 0.64 |
| at 1200°C | % | 0.80 |
| at 1400°C | % | 0.98 |
| Thermal Conductivity | | |
| at 400°C | W/m.K | 2.1 |
| at 600°C | W/m.K | 2.2 |
| at 800°C | W/m.K | 2.2 |
| at 1000°C | W/m.K | 2.4 |
| Chemical Composition: Approximate | | |
| Alumina (Al ₂ O ₃) | % | 56.0 |
| Silica (SiO ₂) | % | 33.0 |
| Iron Oxide (Fe ₂ O ₃) | % | 1.2 |
| Titania (TiO ₂) | % | 1.2 |
| Silicon Carbide (SiC) | % | 7.0 |