

TufDura S 300 & TufDura S 600

Silicon Carbide Low Cement Castable Anti-Oxidation

“ Excellent Tough and Durable Castable for Outlet and Burner Pipe ”

- **Anti-Oxidation**
- **Outstanding Abrasion Resistance**
- **Outstanding Thermal Shock Resistance**
- **Excellent Chemical Resistance**

Longer service life in every part of refractory lining in cement kiln has been made by increasing service life of refractory brick in cement rotary kiln. Except at outlet and/or burner pipe that used normal high alumina low cement castable, refractory was failure due to its limited service life. When the operation is broken down to repair normal high alumina castable at outlet and/or burner pipe, this impacts to unsustainable service life of refractory brick lining in rotary kiln.

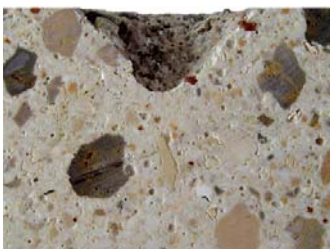
To overcome the limited service life of normal high alumina castable, **TufDura**, high alumina castable with Silicon Carbide containing, was developed with features of tough and durable properties for resistance to abrasion, thermal shock and oxidation.

Abrasion Resistance Testing

Media : Silicon Carbide size -20+50 mesh, 1 kg.

Condition : Air Pressure 70 bar

Sample : After firing at 1400 °C



Normal Low Cement Castable
Abrasion loss 8.0 cc.



TufDura S300
Abrasion loss 5.0 cc.



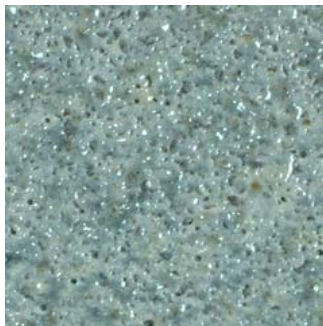
TufDura S600
Abrasion loss 4.0 cc.

Anti-Oxidation

Silicon Carbide (SiC) material is well known that it is abrasive material with high hardness of 9 to 10 in Moh's scale, so it is difficult to react or inert with other chemically materials. Other hands, Silicon Carbide is non-wetting material. Besides, It also has high thermal conductivity property which result in its excellent resistance to thermal fluctuation. From these excellent properties of Silicon Carbide, it normally has been use in high abrasive application.



Silicon Carbide Castable with Oxidation surface



TufDura S 600 with glossy surface for Anti-Oxidation

In refractory technology field, SiC has been use as supporting plate or beam for ceramic industry due to its high hot strength and excellent thermal shock resistant properties. However in high oxygen environment, oxidation atmosphere, with high temperature more than 800 Degree Celsius, SiC could be oxidized easily by Oxygen and then transformed to Silica (SiO₂) that establish higher expansion of structure leading to deterioration of the structure. This is the limitation of using SiC in oxidation atmosphere.

TufDura castable is high alumina castable with SiC containing which was developed by special technology as the state of art. Because **TufDura** can develop itself in situ protection film at hot surface, it can prevent Oxygen penetration into its structure. So that **TufDura** can be used in oxidation atmosphere without any oxidation, Anti-Oxidation, as showed in picture below. This special technology can preserve the excellent original properties of Silicon carbide material; abrasion resistance, thermal shock resistance, and chemical resistance.



TufDura S 600, service life 219 days replacement by plan Shut down, thickness difference ~8 cm. compare with self flow low cement castable

Specification		TufDura S 300	TufDura S 600
Physical Properties (unit)			
Maximum Service Temperature	°C	1500	1500
Max . Grain Size of Aggregates	mm.	5.0	5.0
Approximate Weight Required for Casting	kg/m ³	2705	2595
Approximate Amount of Water Required for Casting	%	5.5-6.0	5.0-5.5
Bulk Density After Drying at 110°C	kg/m ³	2730	2620
Cold Crushing Strength			
after 110°C	kg/cm ²	750	800
after 1000°C	kg/cm ²	800	1100
Modulus of Rupture			
after 110°C	kg/cm ²	130	150
after 1000°C	kg/cm ²	140	200
Reheat Test, Permanent Linear Change			
after 110°C	%	0.00	0.00
after 1500°C	%	0.50	-0.06
Chemical Compositon: Approximate			
Alumina (Al ₂ O ₃)	%	48.0	25.0
Silicon Carbide (SiC)	%	30.0	58.5
Iron Oxide (Fe ₂ O ₃)	%	6.0	0.4
Lime (CaO)	%	1.3	1.3

The above test values cannot be used for specification or guarantee purpose. The stated test values were obtained from tests conducted in accordance with Siam Refractory's written procedure and, where applicable, ASTM test methods or other international standard test methods.

The other stated test values published earlier are replaced by this stated test and thus regarded as invalid. Siam Refractory reserves the right to further technical development and revise technical product information without notice. Please contact our Sales Agent thereon.