Plasgun™ 90 Monolithic

Product Data Sheet

Product Description

Plasgun 90 is a 89%-alumina, guniting-plastic monolith with a use limit of 1760°C (3200°F). Plasgun monolithic refractory products employ a unique cement-free binder system that combines all the superior technical properties of a plastic refractory with all the practical properties of a conventional castable.

Compared with conventional plastics, Plasgun significantly reduce installation time and costs, yet provides a high quality plastic with superior strength and greatly reduced drying shrinkage. The tighter texture and uniform consistency result in rapid strength development throughout the working temperature range.

Compared with conventional castables, Plasgun monolitihics eliminate the need for water curing, maintains intermediate strength, and allows for earlier furnace start-ups. Plasgun monolitihcs are more resistant to thermal shock, impact, and slag attack than comparable conventional castables.

Plasgun is supplied as a dry powder for use in conventional guniting equipment. Water for placement is added at the nozzle using the same techniques used in the guniting of castables. There is no need for special equipment or extremely high air pressures for the placement of this type of guniting plastic. It possesses excellent thermal shock resistance throughout its temperature range. Plasgun can also be troweled or hand rammed by adding 7 to 9% water to the dry mix in a mechanical mixer.

It is used for new linings or hot guniting repair in soaking pits, reheat furnaces, and rotary kiln firing hoods. It has excellent resistance to molten slag and thermal shock.

Instructions for Using

Gunning: Use suitable gunite equipment, either the rotary, double chamber are suitable. Add required water at nozzle for effective placement. Suggested air pressure at the nozzle is 2.5 to 3.5 bar (35 to 50 psi).

Other: Material can be rammed or troweled into place by adding a sufficient amount of water for proper consistency. This would be between 7 to 9% by weight.

Precautions: Plasgun does not need any water curing. Do not spray with water, cover with plastic or apply any membrane curing compounds. Failure to heed this warning will cause material to not gain strength properly and could cause premature loss of lining.

For optimum properties it is recommended that Plasgun be allowed to air dry before initial heat up.

For detailed installation instructions and commissioning schedules, please contact your Morgan Advanced Materials-Thermal Ceramics representative

Properties	Plasgun 90
Region of Manufacture	Americas
Bond type	Ceramic
Raw material base	Tabular Alumina
Method of installation	Gun
Maximum grain size, mm	4
Maximum service temperature, °C (°F)	1760 (3200)
Net material requirement, kg/m^3 (pcf)	2306 (144)
Packaging in bags, kg (lbs)	25 (55)

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Properties	Plasgun 90
Bulk Density, kg/m^3 (pcf), ASTM C134	
dried 24 hours @ 105°C (220°F)	2323 (145)
fired 5 hours @ 816°C (1500°F)	2195-2355 (137-147)
Cold Crushing Strength, MPa (psi), ASTM C133	
dried 24 hours @ 105°C (220°F)	3.1-5.5 (450-800)
fired 5 hours @ 1093°C (2000°F)	8.3-13.8 (1200-2000)
fired 5 hours @ 1600°C (2912°F)	20.7-34.5 (3000-5000)
Permanent Linear Change, %, ASTM C113	
dried 24 hours @ 105°C (220°F)	0.0 to -0.2
fired 5 hours @ 1093°C (2000°F)	-0.1 to -0.4
fired 5 hours @ 1600°C (2912°F)	-1.0 to +1.5
Chemical Analysis, %, Calcined Basis	
Alumina, Al_2O_3	89
Silica, SiO_2	6.4
Iron Oxide, Fe_2O_3	0.9
Titania, TiO_2	1.5
Lime, CaO	1.8
Alkalies as, $Na_2O + K_2O$	0.2
Thermal Conductivity, W.m•K (BTU•in/hr•ft^2•°F) , ASTM C417	
260°C (500°F)	1.28 (8.9)
538°C (1000°F)	1.30 (9.0)
816°C (1500°F)	1.31 (9.1)
1093°C (2000°F)	1.27 (8.8)

Storage and Shelf Life

- Monolithics should be stored in a dry, well-ventilated area and held off the ground on pallets ideally with the original packaging intact. Keep out of rain and damp conditions.
- Normal shelf life is 9 months from date of manufacture when properly stored.

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