

JuFAST

Refractory castables that can be heated up fast



Ju[enger+Graeter] + FAST[Heating-Up] = JuFAST

Refractory castables that can be heated up fast.

Before commissioning of a furnace the standard refractory castables must be subjected to a defined drying procedure in order to prevent damage during heating-up. The steam occurring during heating-up can lead to steam pressures in high-grade, dense refractory castables which exceed the material strength of the castable. Often the result can be cracks, spalling or even destruction due to explosion.

A drying procedure lasting several days can be very expensive. During this time the furnace cannot be utilized by the operator leading to a loss of profit. The operator may have further costs if having to contract external specialists for the drying procedure and equipment. All in all, the total expense can easily add up to hundreds of thousands. J+G has taken a proactive approach to this problem.

In addition to the already available castables with binder systems containing phosphoric acid for quick heating-up, J+G now offers their castables **JuFAST HP000Q** and **JuFAST HP100Q**. These were developed on the basis of a modified chemical binder system. Based on castable mixtures, which have already provided superb results in furnaces lined by J+G, the targeted use of alternative binder systems enabled optimization of the structure of the castable in direction of a more diffusion-open matrix. This enabled a sufficiently improved heating-up behavior compared to standard refractory castables. In addition, if considering commercial aspects, they are far more economic than the castables containing phosphoric acid.

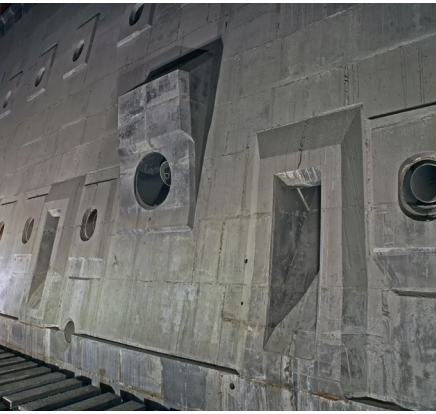
The developed grades **JuFAST HP000Q** and **JuFAST HP100Q** were first tested thoroughly by heating-up tests close to conditions in practice. Since the middle of 2014 they have been successfully installed in large furnaces. Our customers now have the choice between a refractory castable and a gunning castable for quick (renewed) startup of the furnace. In addition to the heating-up friendliness, these refractory castables offer the advantage of good thermal shock resistance and resistance to alkalis.

>> Advantages

- Linear heating-up with 75 K/h (standard with cold startup) without defined holding times and, depending on construction (design) of the furnace, also possible with greater material thickness
- Economic alternative to refractory castables which can be heated quickly and have phosphoric acid binder systems
- Low heat development upon setting of the castables
- No phosphoric acid in the binder
- Shelf life 12 months
- Resistant to alkalis

Heating-up curve during the tests.





Placement of the castable block, dimensions 500 x 500 x 250 mm in the test furnace.



Picture of the cut through the castable structure of JuFAST HP000Q after heating with a linear temperature increase of 100 K/h.
Result: No noticeable cracks in the structure.

	JuFAST HP000Q	JuFAST HP100Q
Application:	casting	gunning
Raw material base:	bauxite	bauxite
Type of setting:	chemical	chemical
Bulk density [g/cm ³]:	2,92	2,45
Grain size [mm]:	0-6	0-6
Required material [g/cm ³]:	2,90	2,70 (without rebound)
Mixing liquid:	additive	additive
Condition of delivery:	two-components	two-components
Shelf life:	12 months	12 months
Max. service temperature:	1.450 °C	1.450 °C
Abrasion resist. ASTM C704 [815°C]:	6,0 cm ³	11,5 cm ³
Chemical analysis:		
Al ₂ O ₃	60-65 %	58-63 %
SiO ₂	10-15 %	14-18 %
Fe ₂ O ₃	<1,4 %	<1,3 %
SiC	5-7 %	5-7 %
Irrev. change of length [1.250°C]:	0,10 %	-0,30 %
Cold crushing strength 120°C [MPa]:	50-60	20-30
Cold crushing strength 750°C [MPa]:	75-90	40-60
Cold crushing strength 1.250°C [MPa]:	>110	100-120
Thermal conductivity 400°C [W/mK]:	2,20	2,20
Thermal conductivity 800°C [W/mK]:	2,50	2,40
Thermal conductivity 1.200°C [W/mK]:	2,60	2,60
Remarks:	resistant to alkalies	resistant to alkalies



Contact

Jünger+Gräter GmbH
Robert-Bosch-Straße 1
D-68723 Schwetzingen

Phone: +49 (0) 6202 944 0
Fax: +49 (0) 6202 944 194

info@jg-refractories.com

See our website for more information:

>> www.jg-refractories.com