AFZIR
Advanced Solutions
Strengthening Company

PRODUCT DESCRIPTION

Non-cement castable mass (NCC™) is an improved generation of refractory mass. Advances in refractory science and the use of new technologies have led to the production of high-performance refractory castables without cement content and without cement (hydraulic) bonding. Non-Cement Castable refractory (NCC™) is a category of self-flowing super-refractory casting products with zero cement and advanced formulation that do not have the limitations of castable refractory masses containing calcium alumina cement. In fact, in refractory castables without cement, silica nanometer particles have been used as a binding material. By replacing silica gel with calcium alumina cement, colloidal bonding (gelation) has been used instead of hydraulic bonding. For this purpose, in castable mass without cement, the production amount of lime or cao has been reduced to less than 0.2%. Therefore, there will be no factor to reduce the mechanical characteristics. Therefore, they offer much higher temperature properties, corrosion resistance and resistance to thermal shocks than other types of refractory masses with hydraulic bonding. The small and spherical particles that make up the non-cement castable mass (NCC™) have made this product have high flowability. Therefore, in applications exposed to high heat and when casting with vibration is not possible, this product can be a suitable choice. Non-cementable castable refractory (NCC™), can be used on surfaces exposed to heat and corrosion caused by gases and liquids, to be poured and installed in areas that are difficult to access.

PRODUCT FEATURES

- High resistance to abrasion
- Resistant to high thermal shocks
- Ease of implementation
- Advance formulation
- High compressive strength
- Cao content less than 1%
- High flexural strength
- Corrosion resistant
- High stability and durability in the long term
- Resistant to washing
- quick setting
- Economic
- Super tiny pores
- Cement content less than 3%

PRODUCT USES

Non-cement castable (NCC™) refractory mass are widely used in the following industries:

- steel industry
- cement industry
- Aluminum industry
- Lime kilns
- Oil and gas and petrochemical industry
- copper industry

HOW TO USE

SURFACE PREPARATION

Non cement castable -NCC™

Before using Non-cement castable mass (NCC™) refractory, the surface or wall of the mold should be cleaned and prepared from any contamination using a tool such as a wire brush. The mold used in the execution of Non-cement castable refractory should not be rusted or corroded. In addition, it must be smooth and without unevenness. Also, it should be easy to open and close. Before applying the NCC™, the wall of the mold should be lubricated before use so that the hardened mass does not stick to the wall of the mold.

MIXING

The content or dry powder mixture inside the non cement castable refractory (NCC™) product bag should be transferred out of the bag and onto a mixer or flat surface. Then mix the powder and dry mixture for one minute.. Water should be added slowly to the mixture at the rate of 4% and stirred for 5 minutes. Measure the flowability of the mortar using the slump test. If the refractory mortar provides the required flowability, the product is ready for use.

APPLICATION

To install the free cement castable refractory, it is enough to transfer the prepared mixture to the vibrating mold step by step. NCC™ refractory is one of the products with quick setting. Therefore, you have to wait until the curing time. After the final adjustment, the produced part or surface can be used.

LIMITATIONS

- The mold used in NCC™ refractory mass should be smooth, without corrosion and free from any contamination and impurities.
- The vibration time should not be so long as to disrupt the granulation distribution of the mixture.
- To prepare Non-cement castable mass (NCC™) refractory , drinking water with pH between 6 and 8 and temperature of 15 to 25 degrees Celsius should be used.
- Free cement castable mass are among the products with high sensitivity in installation. For this purpose, the amount of water needed to prepare mass should not exceed the permissible limit.
- Paddle mixers should be used to prepare NCC™ refractory.
- A trowel should not be used to smooth the final surface of Non-cement castable refractory (NCC™).

- The best ambient temperature for non cement castable (NCC™) is 10-30°C. It is suggested to use accelerators under expert supervision at temperatures below 10 degrees Celsius.
- NCC™ should be installed in 15 minutes.
- NCC™ refractory mass should not be frozen. Because the freezing of water inside the refractory of non cement casting endangers the mechanical properties of the structure.

TECHNICAL DATA

	NCC™ 65	NCC™ 85	NCC™ 95
Maximum service temperature	1700	1760	1800
Al2O3	64.2	85.5	94.2
SiO2	31.5	9.6	5.1
Cao	0.1	0.2	0.1
volumetric density (g/cm^3)	2.49	2.78	3.01

STORAGE

Non cement castable refractor should be stored in moisture-resistant 25 kg bags installed by the product manufacturer. The bags containing the dry powder mixture of NCC™ refractory should be stored in a covered warehouse away from moisture and direct sunlight. Throwing NCC™ bags during transportation should be avoided. Because it is possible that the granularity distribution will be messed up. In addition, no more than three pallets of Non cement castablerefractories should be stacked on top of each other. Because, the mass may harden under pressure. In the best case, NCC™ can be stored for 8 months.

CAUTION

Users should observe good industrial and personal hygiene. The use of hardhats, proper footwear, and ear protection should be evaluated on a site-by-site basis. In situations where installation is occurring in water, flotation devices should be utilized. In general, installers of products should wear long-sleeve shirts and pants and use safety glasses/goggles and gloves to minimize skin contact. Measures such as washing after handling the material and before eating, drinking, and/or smoking, as well as routinely washing work clothing and protective equipment to remove contaminants, should be employed.

CLEANUP

Dispose of material in accordance with local disposal regulations. Uncured material can be removed with approved solvents. Cured materials can only be removed mechanically. In fact, the thinner can not completely clean the equipment, Therefore, acetone or ketone solution can be used to clean equipment.

FIRST AID

- In case of contact with skin, wash thoroughly with soap and water
- In case of contact with eyes, rinse immediately with plenty of water.
- Get out of space or use oxygen capsules if you have trouble breathing.
- Wash clothing before reuse

DISCLAIMER OF LIABILITY

AFZIR, LLC warrants its products to be free from manufacturing defects. Buyer determines suitability of product for use and assumes all risks. Buyer's sole remedy shall be limited to replacement of product. Any claim for breach of this warranty must be brought within six months of the date of purchase.
AFZIR shall not be liable for any consequential or special damages of any kind, resulting from any claim or breach of warranty, breach of contract, negligence or any legal theory.
The Buyer, by accepting the products described herein, agrees to be responsible for thoroughly testing any application to determine its suitability before committing to production.