

## PRODUCT DESCRIPTION

Ultra low cement castable (ULCC™) refractory is a unique and advanced generation of a large group of and refractories whose cement content is strongly reduced to less than 3% according to the formulation or special formulation. In ultra low cement castable mass, unlike conventional castable mass, the main binder or connector is not only calcium alumina cement, but the role of the binder in this type of refractory mass is played by a multi-component system. In addition, cao contains less than 1%. Therefore, the thermal resistance in this type of refractory mass is gradually higher than the previous generations. Ultra-low cement castable refractory can work stably up to 1800 degrees Celsius. This type of refractory mortar offers very high compressive strength and thermal resistance due to the reduced amount of water required. In addition, they benefit from ultra-fine pores, which has led to the high resistance of ultra-low cement casting mass against corrosion caused by liquids and gases. Ultra low cement castable refractories in the steel, aluminum, copper, cement industry, as well as the production of refractory prefabricated parts, it is widely and commonly used.

## 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

Ultra low cement castable (ULCC™) 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

Before using Ultra low cement castable (ULCC™) 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 Ultra low cement castable Refractories 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 ULCC™, the wall of the mold should be lubricated before use so



Ultra low cement castable –ULCC™

that the hardened mass does not stick to the wall of the mold.

## MIXING

Ultra low cement castable (ULCC™) refractory should be prepared with higher precision and sensitivity than ordinary refractory mass. Because, changes in adding water and ambient temperature affect this category of refractory masses more than ordinary castable masses. To prepare Ultra low cement castable refractory, simply transfer the dry mix out of the bag and into the mixer or onto a flat surface. ULCC™ can be prepared both with a mixer and manually. After removing the mixture from the bag, the contents should be mixed dry for 1 minute.. Finally, according to the amount specified in the table of technical specifications of the product, add water little by little and mix with the mixture for 3 to 5 minutes. To ensure that the mass is ready, you can take a handful of it and throw it 30 cm upwards and catch it with the same hand but with open fingers. If the castable refractory mass does not spill and does not crack in the palm, the ULCC™ mass is ready for use.

## APPLICATION

To implement ultra low cement castable refractory (ULCC™), it is sufficient to transfer the prepared mixture step by step to the vibrating mold. ultra low cement castable mass is one of the products with quick setting. however, you have to wait until it is curing. after the final setting , the produced part or surface can be used.24 hours is the best time frame to ensure final ULCC™ setting.

## LIMITATIONS

- The mold used in ULCC™ 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 Ultra low cement castable (ULCC™) refractory , drinking water with pH between 6 and 8 and temperature of 15 to 25 degrees Celsius should be used.
- Ultra Low Cement castable (ULCC™) are among the products with high sensitivity in installation. For this purpose, the amount of water needed to prepare the mass should not exceed the permissible limit listed in the product's mechanical specification tables.

- Paddle mixers should be used to prepare ULCC™.
- A trowel should not be used to smooth the final surface of ultra low cement casting refractory.
- The best ambient temperature for Ultra Low Cement castable (ULCC™) is 10-30°C. It is suggested to use accelerators under expert supervision at temperatures below 10 degrees Celsius.

- ULCC™ should be installed in 15 minutes.
- ULCC™ refractory mass should not be frozen. Because the freezing of water inside Ultra cement castable refractory , threatening the mechanical properties of the structure..

**TECHNICAL DATA**

	ULCC™ 95	ULCC™ 90	ULCC™ 80	ULCC™ 70	ULCC™ 60	ULCC™ 45
Maximum service temperature	1800	1750	1700	1600	1600	1550
Grain dimensions (mm)	0 - 6					
Amount of water required (%)	4 - 4.8	4.2 - 5	4.5 - 5.2	4.7 -5.4	4.7 - 5.4	4.8 - 5.5
Al2O3	≥ 94	≥ 90	≥ 80	≥ 70	≥ 60.3	≥ 45.7
SiO2	≤ 4.1	≤ 6.4	≤ 12.9	≤ 24.9	≤ 34	≤ 49.8
Fe2O3	≤ 0.3	≤ 1	≤ 1.8	≤ 1.5	≤ 1.5	≤ 1
CaO	≤ 0.9	≤ 0.9	≤ 1	≤ 0.9	≤ 1	≤ 0.9
volumetric density (g/cm³)	3.1	3	2.9	2.72	2.63	2.36

**STORAGE**

Very low cement casting refractories are packed and supplied in 25 kg waterproof bags. Therefore, it should be stored in the bags provided by the product manufacturer, away from moisture, direct sunlight and in a covered warehouse. Throwing of bags containing dry and powdered ULCC™ mixture during transport should be avoided. Because the granulation distribution may be disturbed. In addition, no more than three pallets From Ultra-low cement castable refractory bags should be stacked on top of each other. Because, the mass may harden under pressure. In the best case, ULCC™ 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.