

PRODUCT DESCRIPTION

Ramming refractory mass (RRM™) is a porous mass, strong and resistant to high thermal shocks, which is formed by mixing fine aggregates (powder), glue (binder), water or other types of liquid additives. ramming Refractory Mass (RRM™), for use both wet and dry and for the purpose of installation or execution by hand using vibration or ramming with tools such as hand hammer, air hammer or pneumatic hammers, design have become. ramming Refractory Mass (RRM™) sets and hardens without the need of water or with a very small amount of it by exposure to heat and high temperature from the environment or room. refractory ramming mass resist the stresses created by thermal cycles during furnace operation. In addition, they are chemically inert to the melting metal and maintain their structure well both during and after the operation. RRM™ is resistant to erosion. It is repairable and can be easily dismantled. ramming refractory mass (RRM™), based on siliceous, magnesite or alumina aggregates and according to exposure to acidic and alkaline slags and estimation of chemical inertness against them, into three acidic, alkaline and neutral categories, are divided. This type of economic fireproof coverings can be easily installed and implemented. The pounding mass (RRM™) is used in all kinds of metal melting furnaces.

PRODUCT FEATURES

- High resistance to heat (refractory)
- High resistance to thermal shocks
- Penetration resistant
- porous
- Excellent mechanical resistance
- High density
- Ease of installation or implementation
- Resistant to slag
- Available in acidic, basic and neutral types
- High useful life
- High durability and stability

PRODUCT USES

Ramming refractory mass (RRM™) are widely used in the following industries:

- steel industry
- cast iron industry
- zinc industry
- Covering melting furnaces
- blast furnace iron runner and slag runner,
- Hot blast dome furnace
- Blast furnace cover
- Molten steel crucibles
- Electric arc furnace
- Covering induction furnaces

HOW TO USE

SURFACE PREPARATION

Before the implementation of the ramming refractory mass, the installation site and the surrounding area must be cleaned of any contamination (such as workshop waste, etc.). Because the presence of contamination can threaten the structure and integrity



Ramming refractory mass-RRM™

of the mass after installation. In addition, the mold must be prepared and installed to pour the reaming refractory mass. molds used in RRM™ implementations may be installed temporarily or permanently. If a temporary mold is used, it must be lubricated to prevent the hardened mass from sticking to the walls of the mold.

MIXING

Ramming refractory mass (RRM™) must be transferred from the bag in the required amount to alarge metal container with a depth of 15-20 cm. Then, the mixture of the refractory mass transferred to the metal container, should be dried at a temperature of 50-70 degrees Celsius, so that after that, the uniformity and distribution of granulation of the refractory mass is achieved by mixing it with a shovel. After mixing in a dry state, the poundable refractory mass is ready for consumption.

APPLICATION

Installation of dry ramming refractories mass requires more precision than wet castable refractories mass. To install it in furnaces, one should start by pounding RRM™ on the floor of the furnace using manual hammers and a manual electric vibrator or a plate-type floor vibrator (the type of tool is selected depending on the project conditions). The formwork required to ramming the RRM™ mass into the wall should then be installed by retaining wedges. The refractory mass is hammered in the wall by a manual hammer, a manual electric vibrator directly and by using a movable arm vibrator, a fixed vibrator or an air hammer indirectly (from inside the mold).

On the other hand, in ramming refractories mass without moisture, initial heating can be done more quickly. The Initial heating in this type of refractory mass can start at 150°C and continue until the beginning of deformation and melting of the mold wall. It is suggested to continue heating at a rate of 40 to 60 degrees per hour. In order to achieve the maximum mechanical characteristics of the mass and also to strengthen the connection between the grains, it is better to consider the temperature in the first melting higher than usual. In such conditions, the behavior and resistance of the RRM™ refractory mass, against the corrosion caused by the melt, is improved and increased. With these details, the heat should continue up to 1595 or 10 degrees above it. It is suggested to keep the temperature in the first melt at the same temperature for up to 1 hour.

LIMITATIONS

- Use a very strong mold or stencils to implement the ramming refractory mass. In addition, the physical health of the mold must also be maintained during operation.
- The thickness of RRM™ in each pouring step should be between 50 and 75 mm.
- The angle of impact should be as sharp as possible to the surface. Because, the ramming angle of the mass should be considered in such a

way that the mass is not layered in the direction parallel to the work surface.

- When the RRM™ refractory application process is stopped, the final surface of the rammed mass should be scraped with a tool such as a pointed iron bar to a depth of 6 mm at various angles. Then the surface is covered with a wet cloth so that the new refractory mass is well connected to the old one after implementation.

TECHNICAL DATA

	RRM™ SI97	RRM™ Mg80-95	RMM™ Al30-90
Maximum service temperature	1650-1700	1600-1750	980-1850
Chemical properties	acidic	alkaline	neutral
Al ₂ O ₃	0.3 - 0.5	0.3 - 10.1	31 - 91
SiO ₂	97	0.9 - 3.5	0 - 28
MgO	---	72 - 94	0 - 54
TiO ₂	---	---	0 - 2.5
CaO	0.1 - 0.5	1.5 - 2.8	---
Cr ₂ O ₃	---	0 - 7.5	---
Na ₂ O+K ₂ O+Li ₂ O	---	0 - 0.1	---
volumetric density (g/cm ³)	1.79 - 2.2	2.46 - 2.75	2.4 - 3.15

STORAGE

Ramming refractory mass (RRM™) should be stored in moisture-resistant 25 kg bags installed by the product manufacturer. The bags containing the dry powder mixture of RRM™ refractory should be stored in a covered warehouse away from moisture and direct sunlight. Throwing RRM™ 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 Ramming refractory mass should be stacked on top of each other. Because, the mass may harden under pressure. In the best case, Ramming refractory mass (RRM™) 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

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