

TYPE OF MONOLITHIC REFRACTORIES

What are Monolithic Refractories?

Monolithic refractories or Monolithics are those, which have no definite shape. In other words these are the refractories which can be moulded or can be given any shape as per requirement. Because of this reason, these products are also known as the ready-refractories and can be used as such on the site to repair or build a furnace. Monolithics consists of graded Refractory aggregates, Binders, Fillers & (/or) special Additives for modification of properties.

Type or Classification of Monolithics:

The classification and nomenclatures of monolithics have been done on the basis of more than a single criterion.

Based on Physical State

1. Powdered state - Castable, Mortar and Ramming Mass.
2. Mud state - Plastics.
3. Paste state - Coating Mass.

Based on Setting Method

1. Hydraulic setting - Castables.
2. Air setting - Mortars, Plastics.
3. Chemical setting - Plastics, Ramming Masses.
4. Ceramic (Heat) setting - Mortars, Plastics, Ramming Masses.

Based on Installation Method

1. Trawling and Pouring - Castable, Mortar.
2. Ramming - Ramming Mass.
3. Gunning - Gunning compound, Castable.
4. Vibrating - Castables.

Castables

These are dry mix hydraulic compositions of graded refractory aggregates with a suitable bonding material, Fillers & (/or) special Additives. On addition of the prescribed quantity of water to these compositions, a wet concrete-like mass is produced which forms useful castables. Ceramic bond is developed when the same is fired at a certain high temperature.

Type of Castables -

- Conventional Castable.
- Low Cement Castables (LCC).
- Ultra Low Cement Castable (ULCC).
- No Cement Castable (NCC).
- Light Weight Castables.
- Self Flow Castables (SFC).

- Insulating Castable.

Coating Mass

These are the Refractory materials especially made for coating on the working surface of the lining having a thin thickness.

Fettling Mass

It is a material which is deposited on the worn out areas of banks and bottom of Electric Arc Furnace (EAF) in hot condition. These are normally applied by shoveling and by using a Fettling Machine.

Gunning Compound or Gunning Mass

Gunning Masses are also unshaped refractory materials (Products) made after blending graded refractory grains with suitable bonding agents and are installed with a Gunning Machine.

Type of Gunning Compounds -

- Dry Gunning
- Shortcreting
- Flame Gunning

Injection Mass

These are the refractory materials that can be injected into a furnace in the slurry state.

Mortar

Powdered or finely ground refractory preparation which becomes plastic and trowel able when tempered with water and is suitable for laying and bonding refractory bricks.

Patching Mass

These are powdered refractory materials mixed with water and/or added with a binder, and with adequate plasticity that can be patched in a place.

Plastic Refractories / Mass

Refractory materials tempered with water and/or added with a binder, which has adequate plasticity to be rammed into a place.

Ramming Mass

Ramming Masses are the ready-mix of refractory materials usually tempered with water, that can not be extruded but that has suitable properties to permit ramming into a place to form a monolithic structure.

Type of Ramming Masses -

- Dry Ramming Mass
- Wet Ramming Mass

Spraying Mass

These are refractory mix consisting of fines and additives which are installed with a Spraying Machine (can also be applied with a Gunning Machine).