



# Refractory Mortar

## What is refractory mortar?

Refractory Mortar is an excellent solution for bonding brickwork into a solid unit and is rated to a temperature of 3000°F (1649°C). Upon air drying, the mortar forms a strong joint and is similar to a monolithic brick structure. The mortar (wet form) or cement (dry form) permits greater resistance to mechanical stresses, and thermal shocks while providing a cushion between irregular brick surfaces for a firm bearing on each course. Material has been manufactured to provide the best combination of workability, plasticity, water retention, drying, firing shrinkage, chemical composition, refractoriness, bonding strength, vitrification and resistance to chemical attack.

## Material Benefits

- Pre-mixed and ready to use high temperature mortar.
- Additional water can be added to reach desired consistency. Add 5 qts of water per 100 lbs of material for a dipping consistency.
- Strong brick-to-brick bond and smooth consistency
- Bonds brickwork into a solid unit with greater resistance to mechanical, thermal shocks, and stresses
- Resistance to the infiltration of air and hot gases
- Resistance to all types of molten metal applications & destructive chemical attacks
- Retards penetration of slag & molten metal into the joints

## Applications

- Insulating firebrick, super duty brick, and high alumina brick installations for various applications subject to intense heat.
- Fireboxes, flues, stacks, boilers, and combustion chambers
- Industrial furnaces and kilns for petrochemical, electrical, aluminum, steel, glass, and ceramic applications.

## Stocked Sizing and Properties

Our office stocks the preferred wet air-setting mortar due to its ease of application and rigid set upon air drying. The mortar is specially formulated to have high water retention and was designed for the layering of fire, super duty, and high alumina bricks. If you are interested in a different refractory mortar / cement or need greater bond strength, please contact us for a custom quote.



| Properties                                      | Unit                         | Refractory Mortar        |
|-------------------------------------------------|------------------------------|--------------------------|
| Temperature Limit                               | °F   °C                      | 3000   1649              |
| ≅ lbs to set 1000*<br>9”x4.5”x2.5” Bricks       | lbs                          | 200 - 400                |
| Modulus of Rupture,<br>Mortar                   | psi                          | 4200                     |
| Modulus of Rupture,<br>Dipped Joint, ASTM C 198 | psi                          | 375                      |
| Linear Shrinkage<br>@212°F (100°C)              | %                            | 4.3                      |
| Refractoriness<br>ASTM C 199                    | °F   °C                      | No Flow<br>@ 3000   1649 |
| Density                                         | pcf   kg/m <sup>3</sup>      | 126   2018               |
| Dipping Density<br>Percent H <sub>2</sub> O     | pcf   kg/m <sup>3</sup><br>% | 124   1986<br>4          |
| Chemical Composition                            |                              |                          |
| SiO <sub>2</sub>                                |                              | 48.8                     |
| Al <sub>2</sub> O <sub>3</sub>                  |                              | 43.2                     |
| Fe <sub>2</sub> O <sub>3</sub>                  |                              | 1.2                      |
| TiO <sub>2</sub>                                |                              | 1.5                      |
| CaO                                             | % Wt.                        | 0.3                      |
| MgO                                             |                              | -                        |
| K <sub>2</sub> O                                |                              | 0.8                      |
| Na <sub>2</sub> O                               |                              | 2.4                      |
| Misc.                                           |                              | -                        |
| lg. Loss                                        |                              | 1.8                      |

Notes: \*Quantity depends on thickness of joint and porosity of brick.