



MEDIUM-DUTY REFRACTORY MORTAR

Dry, medium-duty refractory mortar for setting masonry in fireplaces and chimneys

1. PRODUCT NAME

Akona® Medium-Duty Refractory Mortar

2. MANUFACTURER

TCC Materials®
2025 Centre Pointe Blvd.
Mendota Heights, MN 55120 USA
Phone: 1.651.688.9116
Web: tccmaterials.com

3. PRODUCT DESCRIPTION

Akona Medium-Duty Refractory Mortar is a dry, preblended mortar ideally suited for setting masonry units in fireplaces, inside of fire pit rings, barbeques, pizza ovens, or chimney applications such as setting clay flue liners and parging a smoke chimney chamber. This specially-engineered blend of specific cements and aggregates gives the mortar unique heat-resistance and thermal characteristics for use in high-temperature applications. It is also used to bond fire brick or clay flues to each other. Ordinary mortars can be destroyed or deteriorate under such high-heat conditions. Passes ASTM C199 for mortar temperature limits to resist 2,550°F (1399°C) for a minimum of 6 hours without melting out of the joints of a firebrick and refractory mortar assembly. Required by most building codes for installation of firebrick and flues in chimneys, masonry fireplaces and similar applications.

Features and Benefits

- Medium-duty hydraulic mortar
- Good for applications up to 2550°F(1399°C)
- Non water-soluble
- Just add water, mix, and use
- Air entrained for freeze-thaw resistance
- One hour working time
- Great workability and high strength

When/Where to Use

- Laying fire brick or clay masonry in high heat applications
- Interior or exterior
- Use for constructing or tuck pointing fireplaces, barbecues, and chimneys
- Outdoor fireplaces and fire pits
- Setting clay flue liners
- Set or parging of smoke chambers

4. TECHNICAL DATA

Applicable Standards:

- Passed ASTM C199 Standard Test Method for Pier Test for Refractory Mortars for medium-duty
- ASTM C 1283 Standard Practice for Installing Clay Flue Lining
- ASTM E 136 Test Method for Behavior of Materials in a Vertical Tube Furnace

Available Size

- 50 lb. (22.7 kg) bag (BOM # 104319)
- 25 lb. (11.34 kg) pail (BOM # 114266)

Coverage

- Each 50 lb. bag will yield approximately a ½ cu. ft. (0.014 m³) of wet mortar
- This will lay up about 80-100 standard fire bricks at ¼ in. (3 mm) joint thickness

5. INSTALLATION

Preparation

Read all directions before starting work.

1. All materials should be conditioned to 40°F-75°F (4°C-24°C) 24 hours prior to installation.
2. Remove all loose or unsound materials. Thoroughly clean all surfaces and substrates of dirt, dust, grease, or other contaminants.
3. Do not apply to painted surfaces. Paint must be removed to ensure proper adhesion to the substrate.

Note: It is the responsibility of the installer/applicator to ensure the suitability of the product for its intended use.

Mixing

1. Use cool, potable water, clean tools and clean containers. No bonding additive is needed.
2. Mix only the amount that can be applied within the 20 minute working time.
3. For best results, mix complete contents of the bag in a mortar box. Create a trough in the powder and add 3.5 qt. (3.3 L) of potable water. Mix with a shovel or hoe. A mechanical mixer or a 5 gal. (18.9 L) bucket with a mixing drill attachment is a suitable alternative method to mixing this product. Avoid high-speed mechanical mixing which can entrap air into the mixture.
4. Mix for 2 minutes, let rest for 3 minutes, then mix again for 2 minutes. Mix thoroughly to achieve a uniform, lump-free, putty-like consistency. Mortar should be firm, but workable to be trowelable, and stiff enough to retain ridges and peaks when troweled on a horizontal or vertical surface.
5. If additional liquid is needed, add sparingly up to a total of 4.5 qt. (4.2 L). Excess water reduces strength and can cause cracking.
6. Warmer temperatures will reduce the working time. The addition of cold water at high temperatures, or warm water in low temperatures will aid in adjusting the mix temperature.

Application

For best results, apply only to surfaces that are frost free and above 40°F (4°C) and below 100°F (38°C) within 24 hours of application and 72 hours thereafter. Do not apply to frozen or frost-filled surfaces. Do not apply in direct sunlight on hot, windy days or when rain is forecasted within 24 hours.

For fire or clay brick, a ¼ in. (3 mm) to ⅜ in. (9.5 mm) joint thickness is fairly common. For clay flue tile, a ¼ in. joint thickness is common. Always check with brick manufacturer for their joint thickness recommendations and installation guidelines since this may vary depending on what product is being used.

Curing

No special curing is required under normal installation conditions. Temperatures should remain above 40°F (4°C) for a

Typical Values • Medium-Duty Refractory Mortar	
Initial Set Time	Approximately 20 minutes
Final Set Time	Approximately 60 minutes
Compressive Strength ASTM C109	
24 hours	> 1,250 psi (8.6 MPa)
7 days	> 3,500 psi (24.1 MPa)
28 days	> 5,000 psi (34.4 MPa)

minimum of 7 days. If temperatures are expected to drop below freezing during these 7 days, thermal insulation blankets or plastic sheeting should be used.

The mortar needs to dry out completely prior to exposure to fire. If not cured completely, the material will crack due to the pressure caused by water evaporating within in the mortar. Allow a minimum of 7 to 10 days before heat is applied. Full curing times will vary with individual job conditions, sunlight, temperatures, and humidity.

Clean Up

Use soapy water to clean hands and tools immediately after use. Dried material must be mechanically removed. Use a waste water hardener (e.g. Congelz® or similar product) for cementitious waste disposal.

Limitations

- Follow all industry standard safety procedures when handling, such as gloves and eye protection. Wear gloves at all times, failure to do so can result in severe burns.
- Allow 7-10 days curing time before heat is applied.
- If mortar becomes unworkable, dispose of the unused product. Do not retemper.
- Protect from rain within 24 hours of application (i.e., cover the project).
- Set and cure times can vary with temperatures, humidity, and exposure to sunlight. Cooler weather will slightly retard set time – hot weather will slightly accelerate set time.
- This mortar is not recommended for casting applications, or thickness applications greater than 3/8 in. (9.5 mm).

Safety

READ THE SAFETY DATA SHEET (SDS) BEFORE USING THIS PRODUCT. SDS information is available on our website: tccmaterials.com

Cautions

Read complete cautionary information printed on product container prior to use.

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of the covered Akona brand product(s) under normal environmental and working conditions. Because each project is different, TCC Materials cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

6. AVAILABILITY

To locate Akona products in your area, please contact:
 Phone: 1.651.688.9116
 Email: info@tccmaterials.com

7. WARRANTY

Seller warrants that its product will conform to and perform in accordance with the product specifications. The foregoing warranty is in lieu of all other warranties, expressed or implied, including, but not limited to those concerning merchantability and fitness for a particular purpose. Because of the difficulty in ascertaining and measuring damages hereunder, it is agreed that Seller's liability to the Buyer shall not exceed the total amount billed and billable to the Buyer for the product hereunder.

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Shelf Life	Best when used within one year in original, unopened bags
Storage Conditions	Store dry, cool, out of direct sunlight. Best to condition material to 50-80°F (10°-27°C) before using.
Color	White

WARNING: INJURIOUS TO EYES

KEEP OUT OF REACH OF CHILDREN



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