

1. PRODUCT NAME

Tenon[®] Refractory Mortar

2. MANUFACTURER

TCC Materials[®]

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3. PRODUCT DESCRIPTION

Tenon[®] 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 performance cements and aggregates gives the mortar unique heat resistance and thermal characteristics for use in high temperature applications. Refractory Mortar 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 (1400°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

- Good for applications up to 2550°F (1400°C)
- Air-entrained for freeze-thaw resistance
- One hour working time
- Great workability and high strength
- Meets all requirements of ASTM C199
- Preblended for consistency, just add water to mix
- Hydraulic mortar, once cured becomes water insoluble and acid resistant

Uses

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

SAFETY

READ THE SAFETY DATA SHEET (SDS) BEFORE USING THIS PRODUCT. SDS information is available on our website: tccmaterials.com or contact TCC Materials[®] at 651-688-9116 (7:30 AM to 4:00 PM Central US Time).

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 Tenon[®] brand product (s) under normal environmental and working conditions. Because each project is different, neither Tenon[®] nor TCC Materials[®] can be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

4. TECHNICAL DATA

Tenon[®] Refractory Mortar meets the performance requirements of ASTM C199 for medium duty refractory mortars.

LEED[®] Eligibility¹

- Regional Materials (MR-c4, MR-c5)

Packaging

- 10 lb. (4.5 kg) pail – Product #120913
- 50 lbs. (22.7 kg.) bag – Product #120924

Shelf Life

12 months from the date of manufacture when stored in the original, unopened container, away from moisture, under cool, dry conditions and out of direct sunlight. Product should be stored dry.

5. INSTALLATION

Preparation

All materials should be conditioned to 40°F–75°F (4°C–24°C) 24 hours prior to installation. Proper surface repair preparation is crucial to achieving a successful application. Clean area and remove all loose and unsound materials that will inhibit performance. Do not apply to painted surfaces. Paint must be mechanically 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.

Refer to:

- 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](#)

Job Mockups

The manufacturer requires that when its Tenon® products are used in any application or as part of any system that includes other manufacturers' products, the contractor and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any construction. Written documentation of the tests performed shall be satisfactory to the design professional and contractor. Test results must include the means and methods of application, products used, project specific-conditions being addressed, and standardized tests performed for each proposed system or variation.

Mixing

1. Mix only the amount that can be placed in 60 minutes. Mortar can be mixed manually in a mortar tub with a shovel or hoe, in a mechanical mixer, or in a five gallon bucket with a mixing drill attachment. Avoid high-speed mechanical mixing which can entrap air into the mixture.
2. Mix only with clean potable water. Addition of cold water at high temperatures or warm water at low temperatures will aid in adjusting the mix temperature and set time. Approximate water requirements are:
 - » 10 lb. (4.5 kg) powder; 0.7–0.9 qt. (0.66–0.85 L) water.
 - » 50 lb. (22.7 kg) powder; 3.5–4.5 qt. (3.3–4.2 L) water.
3. Pour full bag into the mixing tub. Create a trough in the powder and add potable water. Mix with a shovel or hoe to the desired consistency. Mix for 2 minutes, let rest for 3 minutes, then mix again for 2 minutes. Add additional water in small increments.
4. Stir mortar to remix during use. If mortar becomes unworkable, dispose of the unused product. Do not retemper.

Application

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 7 days thereafter. Do not apply in direct sunlight on hot, windy days, or when rain is forecasted within 24 hours.

1. Mortar working time is approximately 60 minutes @ 70°F (21°C).
2. For fire or clay brick, a 1/8 in. (3 mm) to 3/8 in. (9.5 mm) joint thickness is fairly common.
3. For clay flue tile, a 1/8 in. joint thickness is common.
4. Always check with brick manufacturer for their joint thickness recommendations and installation guidelines since this may vary depending on what product is being used.

Limitations

- Do not overwater.
- Do not mix more mortar than can be placed in 60 minutes.
- Do not retemper, adding additional water after initial mixing.
- Install in accordance with local building codes and applicable ASTM standards.
- Not to be used as a casting cement for making bricks or slabs.
- Protect from rain within 24 hours of application.
- Unused product should be stored dry, covered and protected from weather and other damage.

Curing

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

Cleaning

Use water to clean all tools immediately after use. Dried material must be mechanically removed.

Coverage

- 10 lb. (4.5 kg) pail yields approximately 0.13 cu. ft. (3.68 L) wet mortar. This will lay approximately 16 to 20 standard fire bricks at 1/8 in. (3 mm) joint thickness.
- 50 lb. (22.7 kg) bag yields approximately 0.5 cu. ft. (18.4 L) wet mortar. This will lay approximately 80 to 100 standard fire bricks at 1/8 in. (3 mm) joint thickness.

6. AVAILABILITY

To locate Tenon® 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.

8. MAINTENANCE

Not applicable.

9. TECHNICAL SERVICES

Technical Assistance:

Information is available by calling TCC Materials® (hours 7:30 AM to 4:00 PM CST):

Phone: 1.651.688.9116
Email: info@tccmaterials.com
Web: tccmaterials.com

Technical and Safety Literature:

To acquire technical and safety literature, please visit our website at: tccmaterials.com.

10. FILING SYSTEM

Division 4

¹Tenon® products can contribute to LEED® credits within the Material Resource, (Recycled Content & Regional Materials) and Indoor Environmental Quality (Low Emitting Materials).

LEED® is a registered trademark of U.S. Green Building Council.



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