

## **CORROSION ENGINEERING SPECIFICATIONS FOR INSTALLATION**

### **ACID PROOF BRICK MORTARS - MIXING AND USE**

#### **1. ENVIRONMENTAL CONDITIONS**

- 1.1 All Corrosion Engineering brick mortars are designed to be mixed and applied at 70°F. Mortars may be used as low as 50°F, and in the case of Resin Mortars, cold room hardeners are available to allow their use as low as 40°F. In addition to the obvious need to maintain the mortar components and the surrounding air temperature at the above noted levels, it is also important to keep brick stored at the same temperatures.
- 1.2 Under no circumstances should a silicate based mortar be used below 50°F, as the chemical reaction that sets the mortar is prevented at this temperature.

#### **2. TWO COMPONENT RESIN MORTARS - MIXING INSTRUCTIONS**

- 2.1 This section covers mixing and application of the following Corrosion Engineering Resin Mortars: FURALAC® Mortar (Green Panel and Special), FURALAC FN, PENNCHEM® Mortar, and ASPLIT® Phenolic Mortar.
- 2.2 Be sure that the contents of each liquids container are thoroughly constituted before mixing together.
  - 2.2.1 **Exception:** ASPLIT Phenolic Resin can develop a separation of a water component that is in the resin. **If water is visible on top of the Resin, DO NOT** try to re-mix this water, as physical properties of the mortar will be destroyed. Instead, this water should carefully be decanted off and discarded, and the remaining resin shall then be thoroughly constituted before mixing in the powder component.
- 2.3 Pour Mortar Resin into a clean, dry mixing container.

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- 2.4 Add appropriate amount of mortar powder to the resin and mix slowly by either mechanical means or a hoe, until a fully wetted and creamy mortar texture is obtained. Most mortars have a short working time, do not mix too much at a time.
- 2.5 Mortar which has begun to set cannot be recovered by adding more resin. Such mortar must be discarded. Never add water or other diluents. It is important that the ratio of resin to powder be maintained as close as possible to that stated on the individual product data sheets. Minor adjustments in the quantity of filler can be made to optimize handling and workability characteristics, as per the preferences of the individual bricklayer. It is noted however, the Hardener component is in the filler, and too a loose a mix will result in decreased strengths.

**3. THREE COMPONENT RESIN MORTARS - MIXING INSTRUCTIONS**

- 3.1 This section covers mixing and application of the following Corrosion Engineering Resin Mortars: PENNCHEM<sup>®</sup> Novolac Mortar, and Corrosion Engineering Vinyl Ester Mortar Carbon.
- 3.2 Pour measured amount of Mortar Resin into a clean, dry mixing container.
- 3.3 Add measured amount of Hardener component to the resin and mix thoroughly for at least one minute.
- 3.4 Add measured amount of Filler (PENNTROWEL<sup>®</sup> L/F Silica Filler for PENNCHEM Novolac Mortar, and PENNTROWEL L/F Carbon Filler for Corrosion Engineering Vinyl Ester Mortar Carbon), a little at a time, mixing with slow speed mechanical mixer until the powder is thoroughly wetted by the resin/hardener mixture to produce a homogeneous trowelable mortar.

**4. SILICATE MORTARS - MIXING INSTRUCTIONS**

- 4.1 This section covers mixing and application of the following Corrosion Engineering Silicate Mortars: CORLOK<sup>®</sup> B Mortar, HB<sup>®</sup> Mortar, K14<sup>®</sup> Mortar, and HES<sup>®</sup> Mortar.
- 4.2 Pour measured amount of Solution into a clean , dry mixing container. In the case of HES Mortar, use clean potable water.
- 4.3 Add Mortar Powder to the Solution, a little at a time, mixing the powder until thoroughly wetted by the Solution. Add sufficient Powder such that a creamy mortar, free of lumps, and possessing good handling (trowelable) properties is obtained.

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4.3.1 **Exception:** HES<sup>®</sup> Mortar. HES Mortar undergoes a two stage change when mixed. As the recommended ratio of Powder is first added, and mixed, the Mortar will appear to be somewhat dry. It is VERY important to NOT add additional water at this time. Instead, continue mixing for an additional 3 or 4 minutes, and the Mortar will wet out on its own, without adding more water. The addition of extra water will significantly reduce the mortar's strength.

4.4 Mixed mortar which has begun to set cannot be re-tempered, and should be discarded.

**5. USE INSTRUCTIONS (ALL MORTARS)**

5.1 Acid proof mortars are applied by trowel to clean, dry, neutral masonry and other surfaces observing the following procedures:

5.2 All bonding surfaces shall be buttered completely in order to prevent voids.

5.3 Mortar joints should be kept full and be of a nominal 1/8" (3.2 mm) width.

5.4 Bed joint of mortar may be applied directly over asphalt membrane surfaces and other membrane surfaces including rubber and plastics. Mortar is troweled onto adjacent sides of the brick then the brick is placed into the wet bedding mortar as required.

5.5 The working and setting times of the wet mortar shall not be lengthened by reducing the proportion of powder in the mix. These factors are best controlled by temperature.

In COLD weather, initial setting of the mortar can be hastened by:

- a. Keeping the mortar components in a warm location 75-85°F.
- b. Store brick in a warm 75-85°F location at least 48 hours prior to usage. Brick or tile pallets shall be broken open to allow those brick in the interior of the pallet to also be warmed.
- c. Corrosion Engineering F/P Mortar Accelerator is designed to be used in cold weather for phenolic and furan based mortars. The addition rate is noted on the applicable mortar data sheet. The addition of any other chemicals, including, but not limited to, hydrochloric acid, is NOT recommended to accelerate cure of resin mortars in low temperatures.

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- d. For PENNCHEM Mortar (vinyl ester) add Pennchem Mortar Initiator at a rate of 2.0 fluid ounces per 50 lb pail of resin.
- e. Avoid frost and moisture in bricks by keeping them under cover.

In HOT weather, the following practices will extend working time:

- a. Mix smaller batches.
- b. Keep components and brick in less than 70°F (21°C), shaded location. Refrigerate the resin for 48 hours prior to use.
- c. Place mixing pan in another pan containing cold water and ice. Avoid getting water or ice in the mortar.
- d. Keep brick cool as well.

## **6. CLEAN UP**

- 6.1 Resin Mortars - Mixing blades, mix containers, mortar pans, trowels, etc. should be cleaned periodically using methyl ethyl ketone (MEK), xylene or toluene. These solvents may present various hazards and should be kept away from heat, sparks, and flames. Observe proper safety precautions and refer to the supplier's label and material safety data sheet for additional information.
- 6.2 Silicate Mortars - Clean up with water.

## **7. CURE TIME**

- 7.1 Cure time for all brick mortars is a function of temperature (of mortar components, brick, air, and substrate) and relative humidity. Consult the applicable product data sheet for specific work life and set time information. For accelerated heat cure schedules, contact Corrosion Engineering for specific recommendations.

## **8. STORAGE**

- 8.1 Corrosion Engineering recommends all acid proof brick mortars be stored in a dry, cool, covered premise on wooden pallets. When properly stored at 70°F the estimated shelf life of all mortar components is one year except for the following:
  - a) PENNCHEM® and Pennchem FN Resin - 6-9 months (varies with

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heat & humidity).

b) ASPLIT<sup>®</sup> Phenolic Resin - 4-6 months

8.1.1 The Resins noted 8.1 may be suitable beyond the range noted, but should be tested. Contact Corrosion Engineering.

8.2 Actual shelf life may vary depending on storage conditions and may in some cases be longer or shorter than noted above. If there is any question with respect to the quality of the mortar components, the components shall be tested by Corrosion Engineering prior to being used.

**9. SAFETY PRECAUTIONS / DISCLAIMER**

9.1 Read and follow the hazard information, precautions and first aid directions on the individual product labels and material safety data sheets before using. While all statements, technical information, and recommendations contained herein are based on information our company believes to be reliable, nothing contained herein shall constitute any warranty, express or implied, with respect to the products and/or services described herein and any such warranties are expressly disclaimed. We recommend that the prospective purchaser or user independently determine the suitability of our product(s) for their intended use. No statement, information or recommendation with respect to our products, whether contained herein or otherwise communicated, shall be legally binding upon us unless expressly set forth in a written agreement between us and the purchaser/user.

9.2 Please contact Corrosion Engineering for specific recommendations at +610-833-4000.

***[www.corrosion-engineering.com](http://www.corrosion-engineering.com)***