



SURFACE PREPARATION AND APPLICATION GUIDE

SERIES 218-1000 MORTARCLAD

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1.0 INTRODUCTION

The purpose of this guide is to acquaint contractors and applicators with the basic information necessary for properly ordering, storing and installing Tnemec's Series 218-1000 MortarClad. It is important to read this entire guide carefully prior to starting any work. This application guide cannot cover every issue that may be encountered in the field. If you have questions, please contact your Tnemec representative or call 1-800-TNEMEC1 for assistance. It is important that you obtain answers to any questions before work begins.

Please review all pertinent product data sheets prior to starting. Also, reference the project specifications and compare them with the product data sheet. Resolve any inconsistencies prior to starting work.

2.0 PRODUCTS AND PACKAGING

The following contains information on the core components of this product.

2.1 SERIES 218-1000 MORTARCLAD

Series 218-1000 is a high-performance, cement-based, aggregate reinforced waterborne epoxy for surfacing, patching and filling voids and bugholes up to 1/4" (6.3 mm) deep in concrete substrates. In addition, it also serves as a means to diminish outgassing problems typically associated with coating concrete when used as a resurfacer at 1/16" (1.5 mm) thickness. Generally topcoated with a variety of high-performance epoxies and polyurethanes for use in mild to aggressive exposures.

2.2 SERIES 218-1000 PACKAGING

KIT SIZE	PART A (Liquid)	PART B (Liquid)	PART C (Cement-Sand)	YIELD (Mixed)
Large	1 gal plastic jug	1 gal can	42.77 lb bag	3.0 gallons (11.4 L)
Small	1 qt. plastic jug	1 pt can	10.7 lb bag	0.80 gal. (3.0 L)



2.3 SERIES 218-1000 PACKAGING

Thickness	Large Kit (theoretical)	Small Kit (theoretical)
1/16" (1.6 mm)	77 sq. ft. (7.2 m ²)	21 sq. ft. (2.0 m ²)
1/8" (3.1 mm)	38 sq. ft. (3.5 m ²)	10 sq. ft. (0.9 m ²)
1/4" (6.4 mm)	19 sq. ft. (1.8 m ²)	5.0 sq. ft. (0.5 m ²)

Allow for application losses due to surface irregularities and substrate porosity.

2.4 SERIES 218-1000 STORAGE AND MATERIAL TEMPERATURE

Minimum storage temperature is 40°F (4°C) and maximum is 110°F (43°C). For optimum handling and application characteristics, all material components should be stored or conditioned between 70°F and 80°F (21°C and 27°C) 48 hours prior to use. Protect Parts A & B from freezing; discard if frozen. Protect Part C from moisture; store in dry environment off ground.

3.0 SURFACE PREPARATION

3.1 PREPARATION OF CONCRETE

Allow new cast-in-place concrete to cure a minimum of 28 days at 75°F (24°C). Verify concrete dryness in accordance with ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride" (moisture vapor transmission should not exceed three pounds per 1,000 square feet in a 24 hour period), F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes" (relative humidity should not exceed 80%), or D 4263 "Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method" (no moisture present). Prepare concrete surfaces in accordance with NACE No. 6/SSPC-SP13 Joint Surface Preparation Standards and ICRI Technical Guidelines. Abrasive blast, shot-blast, water jet or mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers and other contaminants and to provide a minimum ICRI-CSP 5 surface profile.

3.2 CMU

Allow mortar to cure for 28 days. Level protrusions and mortar splatter.

3.3 DRY PACK REPAIR

For repair of large bugholes, honeycomb and other cavities deeper than the recommended maximum film thickness, 20-25 lbs of multi-purpose clean sand (conforming to ASTM C 33) or 15-18 lbs of locally purchased pea gravel (coarse aggregate) can be post-added to a large kit of Series 218-1000 to create "dry pack" mortar. One half inch to No. 8 size (12.5 mm to 2.36 mm) pea gravel conforming to ASTM C 33 is recommended. Contact your Tnemec Representative or Tnemec Technical Services for additional information.

3.4 REINFORCING STEEL REPAIR

Where corrosion of the reinforcement steel (rebar) exists, continue concrete removal along the corroded steel and any adjacent areas which show evidence of corrosion-induced damage that would inhibit bonding of repair material. When the exposed reinforcing steel has loose rust, corrosion products, or is not well bonded to the surrounding concrete, removal should include undercutting the corroded reinforcing steel by approximately 3/4 in (19 mm) in accordance with ICRI Guideline No. 310.1R. Every precaution should be made to avoid cutting underlying reinforcement. All exposed reinforcement surfaces shall be thoroughly cleaned of all loose concrete, rust, and other contaminants. A protective coating such as Series 1 or N69 can be applied to the reinforcement after surface preparation. Avoid spillage or application onto the parent concrete. The area around the rebar may then be rebuilt using Series 218-1000 MortarClad dry-pack, or in more extreme cases, Series 217 MortarCrete.

3.5 OUTGASSING

Outgassing must always be considered a possibility with any concrete substrate. Series 218-1000 can reduce concrete outgassing in subsequent coats of a lining system. Application should be performed out of direct sunlight and during times when the surface temperature of the concrete is stable or in a descending pattern. This may require resurfacing the concrete during the night when temperatures are descending. Outgassing which occurs during the application of Series 218-1000 will typically be evident as small pinholes or blisters in the wet mortar. The second condition can leave small pockets of air between the mortar and concrete which should be removed by using a spiked roller if the mortar is not set. Otherwise, hand tools such as right angle grinders may be used to remove the air pockets from the cured mortar. Series 218-1000 or Series 215 should be used to repair the affected areas.

Important: In order to reduce outgassing, a scrub coat can be utilized. After thinning a Large Kit (LK) of Series 218-1000 with 20 ounces of water, work a thin scrub coat into the SSD substrate using a rubber float or masons brush. Allow scrub coat to set for at least 15 minutes before application of a full lift.

3.6 TERMINATIONS

When the coating system is not scheduled to provide a monolithic surface, terminations must be built into the system. For example, when the system is scheduled to terminate, sawcuts must be installed. Apply Series 218-1000 up to edge of sawcuts, then install the topcoat lining system into the sawcut. Please refer to the respective Construction Details Guide which can be found online at www.tnemec.com.

4.0 MIXING

Mix the entire kit of product as supplied. For smaller applications, smaller kits are available. **Note:** Mixing less than a full kit can result in mis-catalization, improper film build and variant cure times. The aggregate for Series 218-1000 is supplied by weight, not by volume, so determining proper portions can be extremely difficult. Kit splitting is not recommended and Tnemec shall not be liable nor warrant such an application.

Mortar mixers, Kol mixers, or mixing paddles such as M713 H style mixing paddle with a minimum 10 amp, 3/4" heavy-duty drill motor are recommended for mixing.

Pour liquid Part B into a container large enough to hold all components. Under agitation slowly add liquid Part A. When blended, slowly sift powder, Part C, while continuing agitation. Do not dump all of the Part C into the liquids at one time. Mix for two minutes or until the cement-sand is thoroughly wetted and a smooth consistency is obtained. **Important: Do not add additional Part C.**

4.1 THINNING

Various levels of thinning are allowed when using Series 218-1000 depending on the method of application being used. For hand placed applications using mortar hawk and steel trowel, thin between 5 oz. and 10 oz. per large kit. Spray transfer of the mortar will require between 10 oz. and 20 oz. of potable water per large kit. The precise amount of thinning will be determined by the height of the concrete surface profile. For profiles between

ICRI CSP-5 and CSP-6, up to 20 oz. can provide for a wetter, more workable mortar. Concrete surface profiles between ICRI CSP-7 and CSP-9 are too deep for the mortar to stay in place when 20 oz. is added. In these cases, 10 oz. can provide good spray transfer rates and leave the mortar at a consistency suitable to fill the profile.

4.2 WORKING TIME

45 Minutes	75°F (24°C)
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Caution: Thinning with high temperature water will significantly reduce pot-life. For best results, water temperature should not exceed 80°F (27°C). Use only potable water.

4.3 SURFACE TEMPERATURE

A minimum of 45°F (7°C), optimum 65°F to 80°F (18°C to 27°C), maximum of 90°F (32°C). The substrate temperature should be at least 5°F (3°C) above the dew point.

5.0 APPLICATION & EQUIPMENT

The concrete substrate surface shall be "pre-wet" or dampened with potable water to a Saturated Surface Dry (SSD) condition; the concrete is darkened by water but there is no pooling of water on the concrete. This can be done by using a Hudson pump-up sprayer or heavy nap roller cover dampened with potable water.

Note: Do not over saturate the surface.

Series 218-1000 can be placed using either a mortar hawk and steel, stiff concrete finishing trowels, broad knives, or rubber floats; or it can be spray transferred using hydraulic spray equipment (i.e. WIWA 410 9:1, WIWA 600 12:1, or Graco M680 mortar pump).

Once the mortar is placed it can be spread or smoothed using a trowel, broad knife or float, being careful not to tear the mortar. If the mortar begins to tear, it should be allowed to set until the material assumes a dough-like consistency and then closed using a 1/4" nap paint roller dampened with water. The amount of time necessary for the material to assume this consistency will vary with ambient conditions, thickness, thinning, and dampness of the concrete surface. Using the dampened roller, work the surface of the mortar to smooth out any imperfections such as trowel licks, mortar splatter, and outgassing pockets leaving the Series 218-1000 ready for subsequent coating once it fully cures. Removal of surface imperfections after the mortar cures will require much more work than finishing them smooth using the roller during application.

6.0 CURING SCHEDULE

Temperature	75°F (24°C) & 50% R.H.
To Touch	3-4 hours
To Recoat (with itself)	Unlimited
To Topcoat	15 hours minimum

7.0 HEALTH AND SAFETY

Series 218-1000 is for industrial use only and shall be installed by a qualified installer. Cementitious products contain chemical ingredients

which are considered hazardous. Read container label warning and Material Safety Data Sheet for important health and safety information prior to the use of this product. Keep out of the reach of children.