



SURFACE PREPARATION AND APPLICATION GUIDE

SERIES 218 MORTARCLAD™

TNEMEC COMPANY INC.

6800 Corporate Drive, Kansas City, MO 64120
1-800-TNEMEC1 www.tnemec.com

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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 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 MORTARCLAD

Series 218 MortarClad 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 PACKAGING

KIT SIZE	PART A (Liquid)	PART B (Liquid)	PART C (Cement-Sand)	YIELD (Mixed)
Large	1 gal plastic jug	1 qt can	42.75 lb bag	2.8 gallons (10.6 L)

2.3 SERIES 218 COVERAGE RATES (THEORETICAL)

Thickness	Large Kit (theoretical)
1/16" (1.6 mm)	72 sq. ft. (6.7 m ²)
1/8" (3.1 mm)	36 sq. ft. (3.3 m ²)
1/4" (6.4 mm)	18 sq. ft. (1.7 m ²)

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

2.4 SERIES 218 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 90°F (21°C and 32°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 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" (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 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 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 will typically present small pinholes or as small blisters in the wet mortar. The second condition can leave small pockets of air between the mortar and concrete which should be removed. The air pockets can be removed using a spiked roller if the mortar is not set. Otherwise, hand tools such as right angle grinders may be used to the remove the air pockets from the cured mortar. Series 218 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 with 6 ounces of water, work a thin scrub coat into the SSD substrate using a rubber float or mason's brush.

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 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 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 new empty bucket. Any remaining Part B shall be removed by adding 3-5 ounces of liquid Part A, re-sealing lid and shaking quart can for 5-10 seconds; pour contents into bucket. Add remaining liquid Part A into bucket and blend for 30 seconds. Under agitation, slowly sift Part C powder into the mixed liquids taking care not to deposit entire contents of Part C at once. Mix for two minutes or until the cement-sand is thoroughly wetted and a smooth consistency is achieved. **Important: Do not add additional Part C.**

4.1 THINNING

Normally not required. For low-pressure spray application to transfer the Series 218, may thin up to 6 oz. for large kit. Use only potable water.

4.2 WORKING TIME

1 hour	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.

Mortar Hawk, steel, stiff concrete finishing trowels, broad knives and rubber floats are recommended. For troweling inside an outside corners, the use of a radius or margin trowel is recommended. Material can be transferred to the surface by utilizing hydraulic spray equipment (i.e. WIWA 410 9:1 or 600 12:1 pump) followed by troweling to seal the material. No special ACI 308 curing requirements - ambient cure only.

For a smoother finished appearance, trowel licks may be reduced by using a 1/4" nap roller cover lightly dampened with water over the sealed Series 218 material. For troweling inside and outside corners, the use of a radiused or margin trowel is recommended.

Note: If white liquid is brought to the surface during this process, the Series 218 material is being overworked and/or oversaturated. Overworking or oversaturating the surface may have an adverse effect on the adhesion of subsequent coatings applied. Let Series 218 cure and remove surface deposit using a concrete rub brick.

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

† **Note:** When the first application is equal to or greater than 1/4", or the second application is equal to or greater than 1/4", then the maximum recoat window with itself is 2 hours.

7.0 HEALTH AND SAFETY

Series 218 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.

