



# SURFACE PREPARATION AND APPLICATION GUIDE

SERIES N218 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 N218 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 N218 MORTARCLAD

Series N218 MortarClad is a high-performance, cement-based, aggregate-reinforced waterborne epoxy for surfacing, patching and filling voids and bugholes up to 1" (25.4 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 coatings without the need for further preparation. Do not use Series N218 as a primer or resurfacer under vinyl ester systems.

### 2.2 SERIES N218 PACKAGING

KIT SIZE	PART A (Liquid)	PART B (Liquid)	PART C (Cement-Sand)	YIELD (Mixed)
Large	1 gal jug	1 pint can	40 lb bag	2.73 gallons (10.3 L)

### 2.3 SERIES N218 COVERAGE RATES (THEORETICAL)

Thickness	Large Kit (theoretical)
1/16" / 62.5 mils / 1.6 mm	70.1 sq ft (6.51 m <sup>2</sup> )
1/8" / 125 mils / 3.2 mm	35.0 sq ft (3.25 m <sup>2</sup> )
1/4" / 250 mils / 6.3 mm	17.5 sq ft (1.63 m <sup>2</sup> )
1/2" / 500 mils / 12.7 mm	8.8 sq ft (0.81 m <sup>2</sup> )
3/4" / 750 mils / 19.1 mm	5.8 sq ft (0.54 m <sup>2</sup> )
1" / 1,000 mils / 25.4 mm	4.4 sq ft (0.41 m <sup>2</sup> )

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

### 2.4 SERIES N218 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) for 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), ASTM F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes" (relative humidity should not exceed 80%), or ASTM 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. Large cracks, voids and other surface imperfections should be filled with a recommended filler or surfacer.

### 3.2 CMU

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

### 3.3 DRY PACK REPAIR

For repair of large bug holes, honeycomb, and other cavities deeper than the recommended maximum thickness (up to 2"), 20-30 lbs of locally purchased pea gravel (coarse aggregate) can be post-added 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 N218 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 N218 can reduce concrete outgassing before the application of 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 N218 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. Hand tools such as right angle grinders may be used to remove the air pockets from the cured mortar. Series N218 or Series 215 should be used to repair the affected areas.

### 3.6 TERMINATIONS AND CONSTRUCTION DETAILS

Terminations and Construction Details should be defined in the project specifications. To properly address these, please refer to the respective Construction Details Guide which can be found online at [www.tnemec.com](http://www.tnemec.com).

## 4.0 MIXING

Mix the entire kit of product as supplied. **Note:** Mixing less than a full kit can result in mis-catalization, improper film build and variant cure times. The aggregate for Series N218 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

If Series N218 begins to thicken in the pail during use, drill mix for an additional 20 to 30 seconds to drop the viscosity. Do not add additional water.

**Hand Application:** Do not add additional water.

**Low-Pressure Spray Application:** To transfer the material, may thin up to 6 oz. (177 ml) per kit. **Note:** Use only potable water.

### 4.2 WORKING TIME

1 hour	75°F (24°C)
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### 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

### 5.1 APPLICATION RECOMMENDATION

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 oversaturate the surface and do not apply material over standing water.

Mortar Hawk, steel, stiff concrete finishing trowels, broad knives, and rubber floats are recommended. For troweling inside and 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 N218 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 N218 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 N218 cure and remove surface deposit using a concrete rub brick.

### 5.2 GRACO M680

Cart mounted 10:1 ratio, air operated immerse pump with air filter, regulator and lubricator, pilot air control manifold, fluid outlet drain with drain valve, stainless steel hopper with can lick, 25' 1" diameter & 10' 3/4" diameter fluid line, Flex Hose spray gun applicator with #5 nozzle. 300psi atomizing fluid pressure and adjust at the gun for proper air atomizing pressure requirements. Minimum air requirements 80 CFM @ 100psi.

### 5.2 WIWA 410 OR 600

Cart Mounted 9:1 or 12:1 ratio, Air operated pump with air filter, regulator and lubricator, air control manifold, fluid outlet drain with drain valve, 6.5-gallon stainless steel hopper with can lock, 25' 1" line, 10' 3/4" fluid line, 35' 1/2" airline, atomizing air and control air hose assembly, spray wand with 1/4" and 3/8" spray tips. Unit includes operation manual and is assembled ready for field use. Minimum air requirements 80 CFM @ 100psi.

## 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 N218 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 Safety Data Sheet for important health and safety information prior to the use of this product. Keep out of the reach of children.