



# NA Grout

*High Flow, Non-Aggregate, Non-Shrink Grout*

## DESCRIPTION

**NA Grout** is a blend of specialty cements and admixtures. This material is designed to provide maximum flow, shrinkage compensation and extended working times in an aggregate free formulation where clearances are minimal, such as the grouting of tendon cables. **NA Grout** is non-metallic and contains no aluminum powder or compounds which will produce hydrogen gas, carbon dioxide or oxygen.

## USES

**NA Grout** is ideal for a wide variety of applications that include but are not limited to:

- Grouting of tight clearances between precast segments, beam and columns in contact with stressed steel tendons or cables
- Anchor bolts, dowels and rods where sanded grouts restrict complete encapsulation
- Pumping applications in areas around tensioned cables and tendons to encapsulate and maximize anchorage

## BENEFITS

- Extreme fluidity: Can be pumped into areas that are virtually inaccessible with standard non-shrink grouts
- Working time; Extended for maximum pumping range
- Strength: Attains high compressive strengths at specified water ratios
- Performance: Encapsulates tendons, bolts or bars to protect from corrosion
- Consistent: Strict Quality Control testing and standards

## STANDARDS

**NA Grout** has been specifically formulated to exceed the requirements of ASTM C-1107, Grade C, Corp of Engineers CRD C-621.

## SURFACE PREPARATION

All surfaces in contact with **NA Grout** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces may need to be mechanically abraded to provide necessary bonding requirements. ACI recommends that the area to be grouted should be saturated for 24 hours before placement. Remove any standing water. Substrate should be saturated, surface dry (SSD). Maintain contact areas between 45°F (7°C) and 90°F (32°C) prior to grouting and during initial curing period.

## FORMING

Method of forming must provide for rapid, continuous grout placement. For pourable grout, construct forms to retain grout without leakage. Forms should be coated with **US SPEC Slickote** for easy removal.

## PHYSICAL PROPERTIES

### Compressive Strength (ASTM C-109\*)

SET	1 DAY	3 DAYS	7 DAYS	28 DAYS
A FLUID	2,300 psi (15.85 MPa)	5,400 psi (37.21 MPa)	7,200 psi (49.61 MPa)	8,300 psi (57.19 MPa)

### Rate of Set (ASTM C-953\*)

SET	INITIAL	FINAL
A FLUID	7:15	9:50

### Height Change - Moist Cure Hardened (ASTM C-1090\*)

AGE	% HEIGHT CHANGE
1 DAY	+0.01
28 DAYS	+0.05

### Accelerated Corrosion Test (PTI Specification Appendix B)\*

NA GROUT	CONTROL
> 3000 hours	302 hours

### Bleed Test - Wick Induced Bleed (PTI Specification C 4.4.6.1)\*

4 HOURS	0.0%
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### Bleed Test - Schupack Pressure Bleed (PTI Specification Appendix C)\*

20 psi	0.0%
30 psi	1.8%
50 psi	2.4%

### Permeability (ASTM 1202 modified per PTI Specification 4.4.3)

28 DAYS	< 1000 coulombs at 30V for 6 hours (very low)
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### Chloride Ion Content (ASTM C-1152\*, 28 day specimen)

.02%
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### Initial Fluidity\*

Flow Cone (ASTM C-939*)	< 30 Seconds
PTI Spec 4.4.5.2	< 20 Seconds

### 30 Minutes Fluidity\*

Flow Cone (ASTM C-939*)	< 30 Seconds
PTI Spec 4.4.5.2	< 30 Seconds

\*Notes: 73°F (22.8°C) 55% humidity  
A = 8.0 qts

**Packaging: 50 lb (22.7 kg) bag, 63 bags per pallet**



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## MIXING

For best results, use a mechanical mixer with rotating blades. Pre-wet mixer and empty excess water. Place 7.75 quarts of cool, clean potable water per 50 lb bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes to achieve desired consistency. Mix only enough grout that can be placed within working time. For placements greater than 3" depth, **NA Grout** must be extended by up to 30%, by weight, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

## PLACING

Grout should be placed using established procedures according to American Concrete Institute recommendations. **NA Grout** can be placed by pumping, pouring, rodding or strapping. Mechanical vibration may cause segregation of aggregates. Place grout on one side of area. Let grout flow to opposite and adjacent sides to avoid entrapment of air and uneven bearing of the grouted surface. When necessary, provide vent holes. Grout should continue to be placed until it protrudes from the entire perimeter area. Grout "head" and excess grout may be removed after initial set.

## FINISHING & CURING

Follow standard ACI curing practices. Do not disturb formwork or grout for 24 hours. Use wet rags or burlap to cure for 6 hours after placement. After 6 hours, remove rags from exposed surfaces and cure with a membrane forming curing compound such as **US SPEC Maxcure Resin Clear**, **Hydrasheen 15%** or **CS-25-1315**. For best results, exposed grout should extend downward at a 45° angle from edge of base.

## STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

## LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not use as a patching or overlay mortar or in unconfined areas. Normal conditions working time is 30 minutes. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your US SPEC manufacturer's representative.

## REGULATORY

Read and follow application information, precautions and Material Safety Data Information.

### **Right-to-know**

This product contains Portland Cement (CAS#65997-15-1) and Crystalline Silica (CAS# 14808-60-7)

### **HMIS**

Health 1, Fire 0, Reactivity 0

### **Prop 65**

Warning! This product contains Crystalline Silica, a chemical known to the State of California to cause cancer or reproductive toxicity.

### **VOC Content**

0 g/L

## CAUTION

### **EYE AND SKIN IRRITANT**

Contains Portland Cement (CAS# 65997-15-1) and Crystalline Silica (CAS# 14808-60-7). Do not allow contact with eyes or skin. Avoid breathing dust - silica may cause serious lung problems. There is limited evidence silica is a carcinogen. The use of gloves, goggles, dust masks and other protective clothing is recommended. If cement or sand particles get into eyes, rinse immediately with clean water and seek prompt medical attention.

## TECHNICAL SERVICE

US MIX Co.

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Web Site: [www.usspec.com](http://www.usspec.com)

**NOTICE OF LIMITED WARRANTY** US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales, people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price.

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**Yield: 50 lbs (22.7 kg) will fill approximately 0.43 ft<sup>3</sup> (0.012 m<sup>3</sup>) when 7.75 qts mixing water is used.**