



NA-100

High Flow, Bleed Resistant, Non-Aggregate, Non-Shrink PT Grout

DESCRIPTION

NA-100 is a blend of specialty cements and proprietary 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-100 is non-metallic and non-corrosive.

USES

NA-100 is ideal for a wide variety of applications that include:

- Vertical and horizontal post-tension grouting of stressed steel to provide complete encapsulation and protection from corrosion
- Grouting of tight clearances between precast segments, beams and columns in contact with stressed steel tendons or cables

BENEFITS

- Extreme fluidity: Can be pumped into areas that are virtually inaccessible with standard C1107 non-shrink grouts
- Working time: Extended for maximum pumping range
- Strength: Attains high compressive strengths at specified water ratios
- Thixotropic: High flow restored by agitation
- Corrosion Protection: Encapsulates tendons, bolts or bars to protect from corrosion
- Zero Bleed: When tested to 100 psi per ASTM C1741 via PTI M55.1-12, Section 4.4.6.2
- Consistent: Strict Quality Control testing and standards

STANDARDS

NA-100 meets and exceeds the requirements of PTI M55.1-12. When tested to 100 psi per ASTM C1741 in accordance with PTI M55, Section 4.4.6.2 and Table 4.1(b), NA-100 complies with PTI M55.1-12 as a Class C Grout using no fillers or aggregates.

SURFACE PREPARATION

Refer to PTI M55.1-12 or other governing specification.

MIXING

Use a high-shear colloidal mixer capable of achieving a homogeneous mixture. Pre-wet mixer and empty excess water. Mix at a water ratio of 7.0 quarts of cool, clean, potable water per 50 lb (22.7 kg) bag of NA-100. Mix at approximately 1,500 RPM for 3 to 5 minutes or until desired flow has been achieved and determined using the Modified Flow Cone Method, and/or mud balance. Mix only enough grout that can be pumped continuously within the working time for mixed grout. Do not blend excess water as this will cause bleeding leading to segregation and sedimentation. Do not use any other admixtures or additives.

PLACING

Post-Tensioning grouting applications should commence following grout approval in accordance with governing specifications such as Post-Tensioning Institute Guide Specification, AASHTO LRFD Bridge Construction Specifications, USDOT FHWA Post-Tensioning Tendon Installation and Grouting Manual or other applicable governing specifications.

FINISHING & CURING

Per PTI M-55 5.6.5, the filled ducts shall not be subjected to shock or vibration within 24 hours.

STORAGE

Normal cement storage and handling practices should be observed. Store in an interior, cool, dry place. In hot weather, material needs to be conditioned to be between 50°F–60°F (10°C–16°C) before using. The best option is storage in temperature controlled refrigeration units. All components that will come in contact with the grout should be cooled. Using grout from elevated storage temperatures will have effects of reduced flow and pumpability due to thickening. Shelf life is nine months in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. When grouting at minimum temperatures, ensure surfaces in contact with grout do not fall below 40°F (4°C) until final set has been achieved and grout has reached 800 psi. 800 psi compressive strength is typically achieved within 24 hours at a 40°F (4°C) constant although this should be verified on site per PTI M55.1-12, Section 4.4.2 as needed. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Do not use as a patching or overlay mortar or in unconfined areas. 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.

Packaging: 50 lb (22.7 kg) bag, 45 bags per pallet



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PHYSICAL PROPERTIES*

All Physical Property testing performed in laboratory conditions of 73.5 ± 3.5°F (23 ± 2°C) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent NA-100 with 7.0 quarts water unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results		
Compressive Strength ASTM C942 per 4.4.2	7 Days	28 Days	
	7,000 psi (48.26 MPa)	10,000 psi (68.95 MPa)	
Rate of Set ASTM C953 per 4.4.1	Working Time	Set	
	4:00	8:30	
Initial Fluidity	Test	Efflux Time	
	Flow Cone (ASTM C939) Mod. Flow Cone (4.4.5)	15-30 seconds 6-20 seconds	
30 Minutes Fluidity	Test	Efflux Time	
	Flow Cone (ASTM C939) Mod. Flow Cone (4.4.5)	15-30 seconds 6-20 seconds	
Wick Induced Bleed ASTM C940 modified per 4.4.6.1	Age	Percent Bleed	
	3 Hours	0%	
Volume Change ASTM C1090 per 4.4.4	1 Day	28 Days	
	.07%	.14%	
Chloride Ion Test ASTM C1152	% CI by Weight of Cementitious Content .011%		
Permeability Test ASTM C1202 modified per 4.4.3	Age	Applied Voltage	Charge Passed
	28 Days	30 V	<2,500 coulombs
Chloride Ion Resistance ASTM C1202	Age	Penetrability	Electrical Resistivity (ohm.cm)
	28 Days	360 coulombs	51,000
Wet Density PTI M55 Sect. 4.4.8	Wet Density, lb/ft³ (g/cm³) 122-128 (1.95 - 2.05)		
Accelerated Corrosion Test Section 4.4.7, Appendix B	Time	NA-100	
	1,000 hours	No corrosion	
Schupack Pressure Bleed 4.4.6.2, Table 4.1(b)	Gelman Pressure	Percent Bleed	
	100 psi	0%	
Inclined Tube Test EN 445 per 4.4.9	Age	Percent Bleeding	
	Immediately after Mixing 30 min after mixing with 30 sec remix	0.0% 0.0%	

*Note: PTI M55.1-12 W/(C+P) ratio: .30

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.



WARNING: Cancer and Reproductive Harm -

www.P65Warnings.ca.gov

FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Contact your US SPEC manufacturer's representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets, available online at www.usspec.com.

US MIX Co.
112 South Santa Fe Drive
Denver, CO 80223
Tel: 303.778.7227 Fax: 303.722.8426
Web Site: 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. See product packaging for complete limitation of warranties and liability.

Yield: 50 lb (22.7 kg) will fill approximately 0.56 ft³ when 7.0 quarts mixing water is used.