



RA Grout

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

DESCRIPTION

RA Grout 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. **RA Grout** is non-metallic and non-corrosive.

USES

RA Grout is ideal for a wide variety of applications:

- Grouting of tight clearances between precast segments, beams, columns, fissures and cracks in rocks
- Anchor bolts, soil nails, rock and ground anchors, dowels and rods where sanded grouts restrict complete encapsulation
- Pumping applications and maximizing anchorages

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
- Thixotropic: High flow restored by agitation
- Corrosion Protection: Encapsulates tendons, bolts or bars to protect from corrosion
- Consistent: Strict Quality Control testing and standards

STANDARDS

RA Grout meets and exceeds the requirements of ASTM C1107 and Corp of Engineers CRD C621. When tested in accordance with ASTM C827, **RA Grout** yields a controlled, positive expansion. Meets and exceeds PTI DC35.1-14, Section 6.11.

COVERAGE/YIELD

50 lbs (22.7 kg) will fill approximately 0.53 ft³ (0.015 m³) when 7.75 quarts mixing water is used.

MIXING

For larger batches, use a colloidal mixer. For smaller batches, use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5. Pre-wet mixer and empty excess water. Place 3/4 of the required 7.75 quarts of cool, clean potable water in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes, adding the remaining water, until a homogenous mixture is achieved. Mix only enough grout that can be placed within working time. 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. Mechanical vibration may cause segregation. When necessary, provide vent holes. **RA Grout** must be 100% encapsulated to prevent cracking.

STORAGE

Normal cement storage and handling practices should be observed. Store 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 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 3,000 psi. 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. Not recommended for heavy-duty precision grouting of machinery base plates or crane rails. Setting time will speed up in hot weather and slow in cold weather. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to grouting and during initial curing period. For hot and cold weather applications, contact your US SPEC manufacturer's representative.



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PHYSICAL PROPERTIES

All Physical Property testing performed in laboratory conditions of $73.5 \pm 3.5^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent **RA Grout** with 7.75 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	1 Day	7 Days	28 Days
	4,500 psi (31.02 MPa)	9,000 psi (62.05 MPa)	12,000 psi (82.73 MPa)
Rate of Set ASTM C953 per 4.4.1	Working Time		Set
	2:30		8:00
Bond Strength ASTM C882	1 Day	7 Days	28 Days
	900 psi (6.20 MPa)	1,600 psi (11.03 MPa)	1,800 psi (12.41 MPa)
Fluidity ASTM C939	Test Flow Cone		Efflux Time <30 seconds
30 Minutes Fluidity Following 30 Seconds of Remixing	Test Flow Cone		Efflux Time <30 seconds
Wick Induced Bleed ASTM C940 modified per 4.4.6.1	Age 4 Hours		Percent Bleed 0%
Volume Change ASTM C1090	1 Day ≥ 0.0%		28 Days < 0.20%
Permeability ASTM C1202	Age 28 Days	Applied Voltage 30 V	Charge Passed <2,500 coulombs
Accelerated Corrosion Test		Time 1,000 hours	RA Grout No corrosion
Schupack Pressure Bleed 4.4.6.2, Table 4.1(b)	Gelman Pressure 30 psi		Percent Bleed < 2.0%
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%

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. Keep away from children. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Dispose of contents/container in accordance with local/regional/national/international regulations.



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 and safety data sheets (SDS), available online at www.usspec.com.

US MIX

112 South Santa Fe Drive
Denver, CO 80223

Tel: 303.778.7227 Fax: 303.722.8426

Web Site: www.usspec.com

LIMITED WARRANTY: The manufacturer warrants that this product is free from defects in material and workmanship, and will perform per the manufacturer product literature in effect at the time of purchase. This warranty is for one (1) year from the date of purchase. Any implied warranty of merchantability or fitness for a particular purpose is limited to the duration of this express warranty. This warranty applies only if the product is used, in strict accord with the manufacturer published instructions. The sole and exclusive remedy under this warranty is replacement of the defective product or refund of the purchase price, at the manufacturer's option. CONSEQUENTIAL, SPECIAL, AND INCIDENTAL DAMAGES ARE NOT RECOVERABLE UNDER THIS WARRANTY. All claims under this warranty must be submitted to the manufacturer by calling 303-778-7227. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.