



STR Mortar CI

Flowable, Shrinkage Compensated Structural Repair Mortar

DESCRIPTION

STR Mortar CI is a slow setting, pumpable, structural concrete repair mortar that exhibits excellent flexural properties, shear bond strength and compressive strength. **STR Mortar CI** is a blend of portland cement, selected aggregates and proprietary admixtures. **STR Mortar CI** utilizes a low solubility corrosion inhibitor to extend service-life of reinforced structures reducing absorption and chloride ion permeability. **STR Mortar CI** is ideal for formed applications that require extended working time, high fluidity and added depth requirements.

USES

STR Mortar CI is ideal for a wide variety of formed concrete repairs:

- Vertical form and cast-in-place flatwork
- Tunnels
- Grouted pre-placed aggregate
- Piers, docks and dams
- Form and pump
- Fully contained form applications

BENEFITS

- Resistant: Withstands freeze/thaw damage and de-icer scaling
- Workability: Slow setting, excellent pumpability
- Performance: Excellent compressive, bond and flexural strengths
- Low Permeability: Reduces the potential for corrosion
- Corrosion Inhibitor: Effectively reduces corrosion rate of steel reinforcement
- Consistent: Strict Quality Control testing and standards

STANDARDS

STR Mortar CI meets and exceeds the requirements of ASTM C928 R2.

SURFACE PREPARATION

All surfaces in contact with **STR Mortar CI** 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. For horizontal repairs, saw cut the perimeter of the area being patched into a square with a minimum depth of 1/2". Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated surface dry (SSD). For best results, scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

APPLICATION THICKNESS

1" - 3", Up to 8" Extended

COVERAGE/YIELD

50 lbs (22.7 kg) will fill approximately 0.43 ft³ (0.012 m³) when 3.25 quarts mixing water is used.

MIXING

For best results, use a mechanical mixer with rotating blades or 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 3.25 quarts of cool, clean potable water per 50 lb (22.7 kg) bag in mixer, then add dry material. Mix on low RPM for a total of 3 to 5 minutes until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 3" depth, **STR Mortar CI** must be extended 30% by weight of powder, 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

STR Mortar CI should be placed upon completion of mixing.

For vertical and overhead applications, continuously pump or pour material into forms. Air relief vents in forms should be placed at the highest point in the repair area to prevent voids from entrapped air. For further forming information, refer to ACI 347R "Guide to Formwork for Concrete".

For horizontal applications, pour material into prepared saw cut area ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. Screed or float to the level of the surrounding concrete, then trowel, brush or broom to the desired finish.

FINISHING AND CURING

Follow standard ACI curing practices. Exposed surfaces should be cured with a membrane forming compound such as **US SPEC Maxcure Resin Clear**, **US SPEC Hydrasheen** or **US SPEC Hydrasheen 30%**.

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 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. 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. Allow concrete to fully cure for 28 days before use of this product. 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, 63 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 **STR Mortar CI** with 3.25 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 C109 | 3 Hours | 1 Day | 7 Days | 28 Days |
| | 2,500 psi (17.23 MPa) | 5,000 psi (34.47 MPa) | 6,700 psi (46.20 MPa) | 9,000 psi (65.50 MPa) |
| Rate of Set ASTM C266 | Working Time | Initial | Final | |
| | :40 | 1:00 | 1:45 | |
| Flexural Strength ASTM C348 | 1 Day | | 28 Days | |
| | 1,200 psi (8.27 MPa) | | 1,700 psi (11.72 MPa) | |
| Density ASTM C138 | 141 lb/ft ³ (2,114 kg/m ³) | | | |
| Length Change ASTM C157 | 28 Days Air | | 28 Days Water | |
| | (-)0.04% | | (+)0.03% | |
| Modulus of Elasticity ASTM C469 | 5.03 x 10 ⁶ @ 28 days (34.6 GPa) | | | |
| Freeze/Thaw Resistance ASTM C666 | F/T Cycles | | Durability | |
| | 300 | | 100% | |
| Scaling Resistance ASTM C672 | Age | | Scaled Material | |
| | 25 Cycles | | .01 kg/m ² | |
| Bond Strength ASTM C882 | 1 Day | 7 Days | 28 Days | |
| | 2,100 psi (14.48 MPa) | 2,800 psi (19.31 MPa) | 3,900 psi (26.89 MPa) | |
| Chloride Ion Resistance ASTM C1202 | Age | Penetrability | Electrical Resistivity | |
| | 28 Days | <1000 coulombs | (ohm.cm) 22,000 | |
| Flow ASTM C1437 | Time | | Flow | |
| | 5 Minutes | | 138% | |
| Restrained Shrinkage ASTM C1581 | Net Time-to-Cracking > 28 Days | | | |
| Coefficient of Thermal Expansion CRD C39 | 3.1 x 10 ⁻⁶ in/in°F (5.58 x 10 ⁻⁶ cm/cm°C) | | | |

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

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Denver, CO 80223

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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.