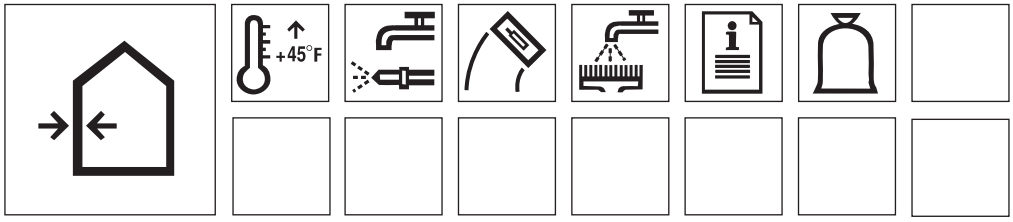
Sto Fiber-Reinforced Shotcrete

CR306

Division 3

shotcrete repair mortar
vertical/overhead
microsilica-fortified
fiber-reinforced, dust-controlled

cement-based, using proprietary StoCrete technology



Technical Data

REPORT	TEST METHOD	CRITERIA	TEST RESULTS
Working Time (minutes)			10-20
Compressive Strength (psi)	ASTM C-109	1 day 3 day 7 days 28 days	4,000 6,000 7,500 8,500
Bond Strength (psi)	ASTM C-882 Modified	7 days 28 days	2,000 2,500
Flexural Strength (psi)	ASTM C-78	7 days 28 days	1,000 1,750
Modulus of Elasticity in Compression (psi)	ASTM C-469	28 days	< 3.8 x 10^6
Splitting Tensile Strength (psi)	ASTM C-496	7 days 28 days	800 1,200
Shrinkage (%)	ASTM C-157	7 days 28 days	< 0.06 < 0.08
Rapid Chloride Permeability (Coulombs)	AASHTO T-277 ASTM C-1202	28 days	< 250

*Typical values for material cured at 73° F (23° C) and 50% R.H.
Note: To convert psi to megapascal (Mpa) multiply by 0.0069.

	Features	Benefits
1	**Microsilica-fortified**	High bond and compressive strengths; reduces permeability and shrinkage
2	**Non-sag, low slump**	Hangs easily without sagging, vertically and overhead; increases job-site productivity
3	**Fiber-reinforced**	High tensile strength; resists cracking; improves flexural strength
4	**Extremely low shrinkage**	Stable bond line; resists perimeter cracking
5	**Thermally compatible with concrete**	Prevents delamination caused by temperature changes
6	**Very low chloride permeability**	Protects embedded steel against corrosion
7	**Low rebound and dust**	More stays on the substrate, increasing yield per bag; usable in confined areas

Sto Fiber-Reinforced Shotcrete is a durable, cement-based, dry-process shotcrete mortar for structurally repairing deteriorated concrete. It has been modified with microsilica and fiber for superior physical strengths. Use it on vertical or overhead surfaces for repairs greater than ½ inch (12 mm).

Volume Yield
0.40 ft^3 per 55-lb bag (0.01 m^3 per 25-kg bag)

Packaging
55-lb bag (25 kg)

Shelf Life
12 months in original unopened container.

Storage
Store in a dry area between 50° F (10° C) and 85° F (29° C). Protect from direct sunlight.

Surface Preparation

Remove loose and deteriorated concrete by mechanical chipping or sand-blasting to obtain a fractured aggregate surface. Detail the edge of the patch to a 90° angle to eliminate feather edging. Make sure surfaces are sound, clean, and free of all bond-inhibiting materials including oil, dust, dirt, laitance and standing water.

Mixing

Use Sto Fiber-Reinforced Shotcrete at a preconditioned temperature of 70 ± 5° F (21 ± 3° C).

Mix Sto Fiber-Reinforced Shotcrete using standard dry-process equipment. This equipment mixes and sprays the product using the following components.

Gun: pressurizes product.

Material hose: conveys product to the nozzle.

Water hose: conveys water to the nozzle.

Water ring: injects water into product as it enters the nozzle.

Nozzle: discharges mixed material onto the substrate.

Once the product is sprayed on the substrate, the working time is 10-20 minutes, depending upon material, ambient and surface conditions.

Application

Dampen the area to be repaired so that the pores of the concrete are filled with water. Remove any ponding or glistening water on the surface (saturated surface dry/SSD).

IMPORTANT: The quality of a shotcrete application depends to a large extent on the experience of the nozzleman.

Apply Sto Fiber-Reinforced Shotcrete following the American Concrete Institute's "Guide to Shotcrete" (ACI 506R-85).

Holding the nozzle at a 90° angle from the substrate and moving it in a circular motion will ensure proper consolidation of the product and reduce rebound.

Once applied, Sto Fiber-Reinforced Shotcrete can be left rough or cut with a trowel and finished with a sponge float for a slightly textured finish.

Applications made during temperatures below 50° F (10° C) or above 85° F (29° C) should follow the appropriate application guidelines.

Curing
Direct sun or wind may cause unwanted rapid surface drying. Curing may be accomplished by continuous water fogging for 48 hours or cover with damp burlap or burlene curing blankets. Do not use solvent-based curing compounds or allow water to puddle. If a coating or sealer will be applied, use water fogging or blanket curing methods and prep finished surface per manufacturer's recommendations.

Clean Up
Clean tools and equipment with water immediately after use. Cured material can only be removed mechanically.

Limitations

- Apply only when the surface and ambient temperature are 45-50° F (7-10° C) and rising. See Cold Weather Application guidelines, per ACI for applications in temperatures less than 50° F (10° C). Applications made during temperatures greater than 85° F (29° C) should follow Hot Weather Application guidelines, per ACI.
- The minimum required thickness is ½ inch (12 mm). To obtain a copy of ACI 506R-85 "Guide to Shotcrete" contact Technical Services.

How It's Used

Sto Fiber-Reinforced Shotcrete is a vertical and overhead shotcrete repair mortar that is ready to use. Once mixed with clean water by standard dry-process shotcrete equipment, it hangs overhead without falling. Fiber reinforcement helps resist cracking. Its low rebound reduces waste, increasing yield per bag and job-site productivity. Use it for repairs greater than ½ inch (12 mm).

Health And Safety

Health Precautions
Contains Portland cement and crystalline-free silica. Avoid breathing dust. As with any chemical construction product, exercise care when handling.

Safety Precautions
Use adequate ventilation. Use of a NIOSH/MSA-approved dust respirator, safety goggles and protective gloves are recommended.

First Aid
SKIN CONTACT: Wash hands thoroughly with soap and water
EYE CONTACT: Flush immediately with water for 10-15 minutes and contact a physician.
RESPIRATORY PROBLEMS: Remove affected person to fresh air immediately and contact a physician.
HYGIENE: Wash hands immediately after use.
Wash clothing before reuse.

Spills
Collect in an appropriate container. Uncured material may be removed with water.

Disposal
Dispose of in accordance with local, state or federal regulations.

Warning
KEEP CONTAINER CLOSED WHEN NOT IN USE. KEEP OUT OF THE REACH OF CHILDREN. NOT FOR INTERNAL CONSUMPTION. FOR INDUSTRIAL USE ONLY. Consult the Material Safety Data Sheet for further health and safety information.

LIMITED WARRANTY
THIS PRODUCT IS SUBJECT TO A WRITTEN LIMITED WARRANTY WHICH CAN BE OBTAINED FREE OF CHARGE FROM: Sto Corp., 3800 Camp Creek Parkway, Building 1400, Suite 120, Atlanta, GA 30331; Tel: 404-346-3666; Fax: 404-346-3119

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