

PRODUCT NAME

# Spray-Con™ WS ST Wet Shotcrete



MANUFACTURER

Gemite® Products Inc.

Toll Free: 888-4-GEMITE (888-443-6483)  
E-mail: [techinfo@gemite.com](mailto:techinfo@gemite.com)  
Web Site: [www.gemite.com](http://www.gemite.com)

<b>USA</b>	<b>CANADA</b>
160-3480 East Robinson Rd.	1787 Drew Road
Amherst, NY 14228	Mississauga, Ontario L5S 1J5
Phone 888-443-6483	Phone 905-672-2020
Fax 888•443•6329	Fax 905•672•6780

FEATURES

- Low rebound
- Up to 30 cm (12 in) in a single application
- Easy, crack free thick to thin application
- Long lasting crack resistance
- Low shrinkage
- Excellent freeze/thaw durability
- High bond strength
- Salt resistant
- Maintenance free
- Nontoxic
- Easy, superior workability
- Applied by authorized applicators
- Labor saving system

PRODUCT DESCRIPTION

Basic Use

*Spray-Con WS ST* is used in concrete restoration of bridges, tunnels, parking garages, ceilings, columns, beams, storage tanks, concrete silos and other concrete structures.

Composition and Materials

*Spray-Con WS ST* is a Portland cement based, fiber reinforced, silica-fume modified wet shotcrete material, formulated for vertical and overhead repairs of deteriorated concrete.

Limitations

Do not apply *Spray-Con WS ST* when the temperature is expected to be below 4°C (40°F) within 48 hours after application. Follow Hot Weather concreting procedures when applying *Spray-Con WS ST* at temperatures exceeding 25°C (77°F).

Health and Safety

*Spray-Con WS ST* is Nontoxic. Your skin might be sensitive to hydraulic cement or the liquid additive. We recommend use of rubber gloves. Avoid contact with eyes and prolonged contact with skin. If contact occurs, flush immediately with water. Seek medical advice if irritation occurs. Harmful if digested. Keep product out of reach of children. FOR INDUSTRIAL USE ONLY. Consult MSDS for additional information.

Color

Dark Gray.

Yield

*Spray-Con WS ST Premix* yields 12.9 L (0.46 ft³) & covers approx. 2.2 m² @ 6 mm (21.9 ft² @ ¼") thickness per bag.

*Spray-Con WS ST Concentrate* (double bag) yields 178.5 L (6.7 ft³) & covers approx. 29.8 m² @ 6 mm (323.3 ft² @ ¼") thickness per mix.

Allowance must be made for waste and "cut-off".

Packaging

*Spray-Con WS ST Premix* is supplied in 22.7 kg (50 lb) bags. *Spray-Con WS ST Concentrate* (double) in 17 kg (37.5 lb) bags.

Storage and Transportation

*Spray-Con WS ST* stored on pallets in a dry cool area has 12 months shelf-life. Packaged 55 bags (*Premix*), 40 bags (*Concentrate Double*) per pallet.

TECHNICAL DATA

Compressive Strength 28 days (ASTM 109)	41.4 - 44.8 MPa 6,000 - 6,500 psi
Salt Scaling Resistance (ASTM C 672)	excellent
fiber volume	0.6% min.
Young's Modulus	68.96 GPa (10 x 10 <sup>6</sup> psi)
Freeze/Thaw Resistance (ASTMC666 A)	weight loss below 1%
Bond Strength with Concrete	> 1 MPa (>150 psi)

INSTALLATION

Current Guide Specification & Application Instructions contain additional information specific to each application and must be followed. Gemite's Technical Service must be consulted before starting a project to ensure that the correct surface preparation and application procedures are followed.

Surface Preparation

Remove all loose, delaminated or contaminated concrete. Use sandblasting, scabbling, high-pressure waterblast (min. 8-10,000 psi), to remove any laitance, dirt and efflorescence.

Crack Treatment

Mesh all dynamic cracks with galvanized welded wire fabric mechanically fastened over the crack. See Guide Specifications for detailed instructions.

Reinforcing Steel

Remove concrete behind the reinforcing steel to 25 mm (1 in) depth. Remove loose rust from the surface of the reinforcing steel and apply two coats of *Fibre-Prime* rustproofing.

Gemite Products Inc.  
July 2015

3

103700 Concrete Restoration  
03720 Concrete Resurfacing

## Mixing

Use mortar paddle mixer, min. 270 L (10 ft<sup>3</sup>) capacity, or the mixing equipment of the wet shotcrete pump. Place most of the water into the mixer. Remove the separately packaged bag of fibers. Add powder into the water while mixing and mix for one (1) minute. Add sand and cement and mix until free of lumps. Add reinforcing fibers gradually and mix for not more than one (1) minute. Adjust the water for suitable workability. Do not over-mix. Convey mixed material to the point of placement in clean containers.

Discard mixed materials that show signs of attaining initial set. Clean the equipment whenever more than 45 minutes has elapsed between batches. Keep the material consistency constant for an easy and continuous spray application.

### Mix Design

### Double

<i>Spray-Con WS ST Conc.</i>	17.1 kg (37.6 lb)
Cement	80 kg (188 lb)
Sand	300 kg (706 lb)
Water	33 L (9.3 USG)
<i>Spray-Con WS ST Premix</i>	22.7 kg (50 lb)
Water	3.6 L (1.0 USG)

#### Aggregate Extension:

In some applications it can be further extended with 9 mm (3/8 in) pea gravel. Contact Gemite Technical Service for information.

## Application

Apply *Spray-Con WS ST* using wet shotcrete equipment, suitable for continuous application. The operator must have positive on/off control at the nozzle to allow for an even spray. When applying layers in excess of 2.5-5 cm (1-2 in) use a liquid accelerator at the nozzle. Contact Gemite's Technical Service for advice on *Adi-Con* accelerators & shotcrete equipment.

## Curing

*Spray-Con WS ST* must be wet cured for 2 days. Protect against fast drying by surface evaporation retardant, curing compound or fine water mist. When working under tarps at freezing temperatures use electrical heaters. Do NOT use propane heaters to prevent "carbonation" of the material.

## AVAILABILITY AND COST

*Spray-Con WS ST* is available worldwide. Contact Gemite for nearest Gemite Representative/Distributor and current pricing.

## MAINTENANCE

None required.

## WARRANTY

A limited twelve (12) month Material Replacement Warranty is available. For complete details contact Gemite's Head Office.

## TECHNICAL SERVICE

For advice on suitability of *Spray-Con WS ST* for specific application, specification assistance & application instructions, contact Technical Service: USA 888-443-6483 / Canada 905-672-2020.

## Short Specification

The shotcrete will be *Spray-Con WS ST*, crack-resistant, fiber reinforced wet shotcrete manufactured by Gemite Products Inc., [USA 888-443-6483] [Canada 905-672-2020]. *Spray-Con WS* must be applied in accordance with Gemite's specifications and recommendations.

## SEWER PIPES REPAIR & PROTECTION

*Spray-Con WS ST* has an excellent resistance to sulfuric acid (H<sub>2</sub>S) generated by oxidation of hydrogen sulfide in sewer systems, manholes, digesters & other concrete structures. The chemical resistance has been tested in hydrogen sulfide chamber, together with other Gemite materials and results are available on request.

Testing & long-term field results have proven that *Spray-Con WS ST* has an excellent resistance to MIC (microbially induced corrosion) and provides superior protection in sewers, manholes, pumping stations, digesters and other concrete structures as part of waste water treatment facilities.

*Spray-Con WS ST* is not a vapor barrier and is insensitive to moisture in the substrate concrete - both during application, or later, when water in liquid or vapor form may reach the interface between concrete and the repair/protective layer.

Polymer (epoxy and polyurethane) coatings & mortars must be applied with no pinholes, cracks or openings in order to provide resistance to acid environments. This is very difficult to achieve when dealing with rough concrete, surface moisture and a high humidity environment & is extremely expensive.

The presence of moisture and difficulty in obtaining a pinhole free application of epoxy / polyurethane systems are the main causes for the rapid deterioration of polymer systems.