K A U F M A N

PRODUCT
INFORMATION

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SureShot WR
By
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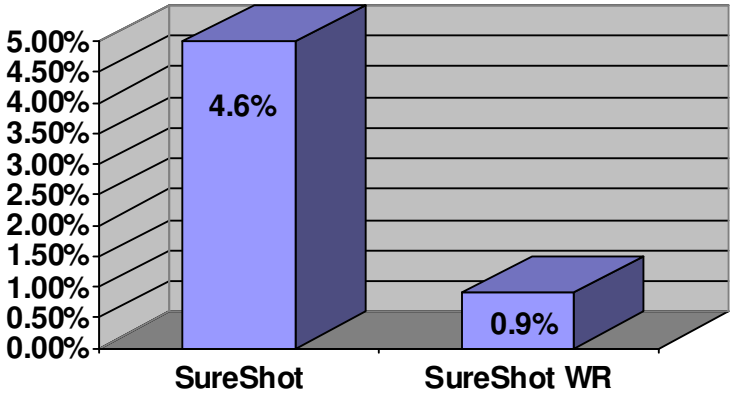
SureShot WR represents the cutting edge in dry process shotcrete technology from Kaufman Products. In addition to producing a blend that includes microsilica, polypropelene fibers, and a migratory corrosion-inhibiting agent, SureShot WR also includes a water repellency ingredient that significantly prevents water intrusion. The obvious benefit is that by reducing water intrusion significantly, the embedded steel is better protected from corrosion, thus producing a longer lasting repair of concrete.

SureShot WR, when tested in the laboratory, produces proven results for water repellency. Two methods have been utilized to prove how effective SureShot WR is when compared to shotcrete mixtures that do not contain this type of technology.

The first test method is a Cylinder Water Absorption Test, per ANSI specification118.7. In this case a 1" by 1" cylinder is cast of SureShot and SureShot WR. After a one-week cure time, the sample is weighed. Then the sample is submerged in water for 24 hours, and the weight is recorded. The chart below shows the difference between standard shotcrete mixes such as SureShot and SureShot WR. In this particular case, the difference is very pronounced with recordings of 4.6% weight gain versus a mere .9% of weight gain, which testifies to the fact that that SureShot WR succeeds where ordinary shotcrete mixes fail with regard to permeability.

WATER ABSORBTION



The second test method is the RILEM Tube Absorption Test, as per RILEM Test Method Number 11.4. RILEM is an acronym for Reunion Internationale des Laboratoires d'Essals et de Recherches sur les Materiaux et des Constructions (International Union of Testing and Research Laboratories for Materials and Structures) located in Paris, France. Their function and purpose are similar to the American organization ASTM in that technical committees are formed to develop standard testing methods. RILEM works specifically with measuring properties, performance, and durability of various building fabrics. One technical committee, Commission 25-PEM developed a method to assess deterioration of natural building stone utilizing what has become known as a RILEM tube. These tubes are now commonly used to evaluate water absorption rates on many types of new, existing, man-made and naturally occurring building materials. In this case, these tubes are used to evaluate the water absorption of a standard dry process shotcrete mix like SureShot versus the SureShot WR

with increased water repellency. The RILEM tube is temporarily affixed to a substrate made of these two shotcrete materials, and water-impermeable putty secures the tube to the shotcrete mix and prevents water from escaping. The tube is filled with water to the 0.0 ml level, which is the top most gradation. Then the volume of water is measured, in this case, every 15 minutes to determine the porosity of the substrate, which is either SureShot or SureShot WR. The height of the column of water, as measured from the center of the bowl to the meniscus in the tube, determines the hydrostatic pressure applied to the test area. This pressure can subsequently be converted into a velocity, or wind-driven rain speed. In this case, filled to 0.0 ml gradation exerts a pressure of 1139.36 Pa, which correlates to a 98.1 mph wind-driven rain.

These two charts demonstrate conclusively that SureShot WR provides a significant benefit by working to prevent moisture intrusion into the shotcrete, and thereby into the substrate. This leads to a longer lasting repair and greater protection of embedded rebar in the concrete. Furthermore, the water repellency additive in SureShot WR forms a protective layer around the rebar during the setting process to aid in the prevention of corrosion.

RILEM TUBE	SureShot	SureShot WR
0 min	0.0	0.0
15 minutes	1.5	0.0
30 minutes	2.2	0.0
45 minutes	2.6	0.0
60 minutes	3.0	0.0
75 minutes	3.4	0.0
90 minutes	3.6	0.0
105 minutes	3.8	0.0
120 minutes	4.0	0.0
135 minutes	4.2	0.0
150 minutes	4.4	.05
165 minutes	4.5	.05
180 minutes	4.6	.05