Pentra-Sil®
(H)

Dustproofing, Hardener

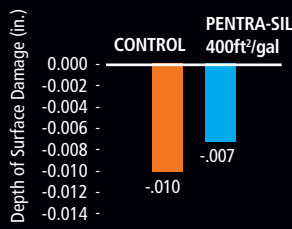
ABRASION RESISTANCE

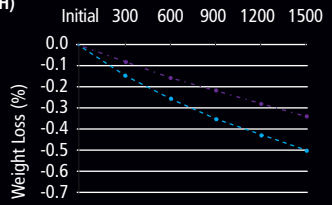
ASTM C-779 DEPTH OF WEAR" CEMENT MORTAR"

A 0.5 w/c mortar was mixed and poured into the 4x0.5" plastic molds in order to make mortar disks. After 14 days of curing the surface of mortar disks were ground and sealed with product at a rate of 400 sq/ft per gal. Taber test results show approximately 35 % abrasion resistance at 1500 cycles.

ASTM C 779 – DEPTH OF WEAR*

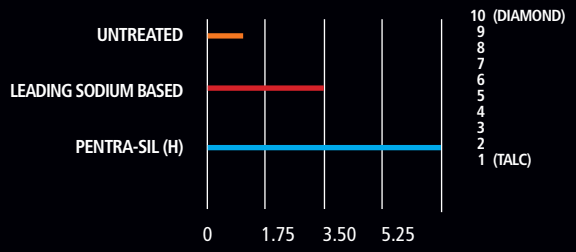
In summary, treatment with PENTRA-SIL (H) improved abrasion resistance 34% over the control. Abrasion resistance – Revolving disks. 32.5% improvement at 30 minutes.





HARDENING

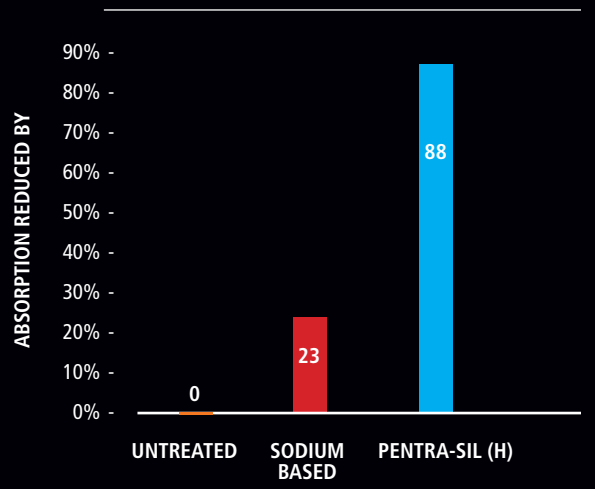
MOHS HARDNESS TEST RESULTS



IMPACT

This surface abrasion test method describes the procedure used to measure the ability of a concrete specimen to resist surface abrasion by impact of steel balls in the presence of water.

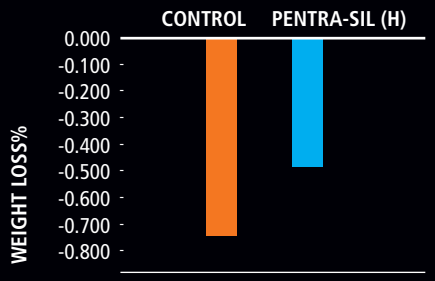
REDUCED H20 ABSORPTION



% WEIGHT LOSS		
SAMPLE	2000 CYCLES	
	3-day	28-day
Control	-0.682	-0.74152
Pentra-Sil (H)	-0.602	-0.48996

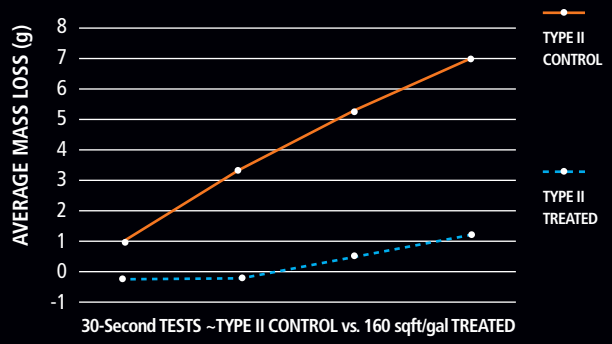
WEIGHT LOSS vs. CONTROL (% IMPROVEMENT)		
SAMPLE	2000 CYCLES	
	3-day	28-day
Control	0%	0%
Pentra-Sil (H)	-12%	-34%

ASTM C-779 Depth of Wear" Portland Cement-Based, Self-Drying, Self-Leveling Concrete Topping. Testing was performed at two ages, 3-days and 28-days, applied at 200 sq/ft per gallon.



The following graph shows the comparison of treated and control specimens with the average cumulative mass lost in the four 30-second abrasion test for Type II w/c 0.44. Type II w/c 0.44 with 160 sqft/gal of Pentra-Sil (H) results show less material loss consistently for each 30-seconds test than the control specimen and also show less material loss cumulatively.

AVERAGE CUMULATIVE MASS LOSS-CONTROL VS. 160 SQFT/GAL PENTRA-SIL (H)

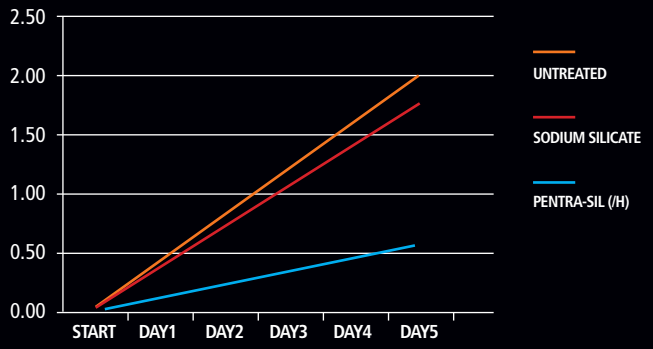


RILEM TEST METHOD

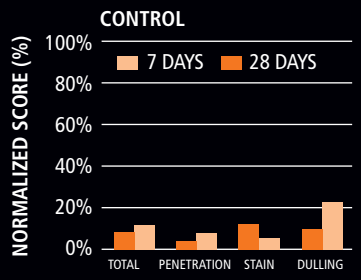
Test Period-5 Days

Untreated Concrete - 40% Water absorption
Sodium Silicate – 35% Water absorption
Pentra-Sil NL/H – 12% Water absorption

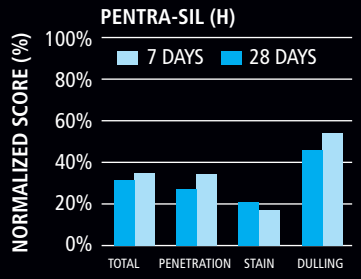
This graph is the AVERAGE absorption rate over 5 days



STAINING

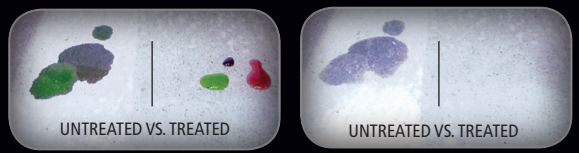


VS



STAINING TEST RESULTS ~ SCORING SYSTEM

1. STAINING
   - No change - area looks exactly like it did before testing (10 pts)
   - Temporarily stained - can be cleaned completely (7 pts)
   - Permanently stained - Discolored, blush, etched (0 pts)
2. SHEEN CHANGE
   - No change - area looks exactly like it did before testing (10 pts)
   - Temporarily dulled - returns to original sheet on its own within a few hours (7 pts)
   - Permanently dulled - (0 pts)
3. PENETRATION (perform this test after the area has been cleaned, rinsed, dried and evaluated for staining and sheen change)
   - No penetration of water (10 pts)
   - Penetration that darkens the concrete (0 points)



Treated and Untreated Areas Shown being tested against Automotive Grade Antifreeze, Transmission Fluid and Aircraft Engine Oil.

SERIES 1-3 DAYS STAINING

	CONTROL				PENTRA-SIL (H)			
	TOTAL 15 MIN.	PENETRATION	STAIN	DULLING	TOTAL 15 MIN.	PENETRATION	STAIN	DULLING
Mustard	0	0	0	0	10	0	0	10
Red wine	0	0	0	0	7	0	0	7
Coffee	0	0	0	0	27	10	7	10
Tobacco	0	0	0	0	10	0	0	10
Sauce	0	0	0	0	17	0	10	7
Water	10	0	10	0	27	10	10	7
Rubbing alcohol	7	0	7	0	27	10	7	10
Acetone	10	0	10	0	10	0	0	10
Vegetable oil	0	0	0	0	0	0	0	0
Vinegar	10	0	0	0	0	0	0	0
Lemon juice	0	0	0	0	0	0	0	0
Dish soap	0	0	0	0	27	10	7	10
Bleach	7	0	0	0	30	10	10	10
Ammonia	10	0	0	0	30	10	10	10
Greased lightning	20	0	0	0	30	10	10	10
	64	0	44	20	252	70	71	111
	15%	0	31%	14%	60%	50%	51%	79%