



FRITZ-PAK SUPERCIZER 6

HIGH-RANGE WATER REDUCER

TEST DATA

**Location: Harmony Road-Fast Track Paving/Whitotopping Job
Fort Collins, Colorado**

**Design Requirements: 4000 psi 12 hours, 2" ± ½" Slump and 5%
± 1% Air Content**

MIX DESIGN (per cubic yard)	SUPERCIZER 6
Cement Type III Ideal	660 lbs
Fine Aggregate 1	1243 lbs
Coarse Aggregate	1815 lbs
Admixtures SUPERCIZER 6	8.7 oz./cwt
AEA	10 oz./yd ³
Water-Cement Ratio	0.30

Set No.	Sample Time	Slump	Air	Compressive Strength, psi	
				12 Hours	24 Hours
1	2:16 p.m.	2"	5.1%	5810	6190
2	3:15 p.m.	1.75"	4.4%	5800	6270
3	4:20 p.m.	1.75"	4.7%	5730	6290

SUMMARY: An 800 foot test section of Harmony Road (S.H. 68, Fort Collins Colorado) was used by the Colorado Department of Highways to determine the effectiveness of placing a concrete overlay over the existing asphalt surface. Two different thicknesses of whitotopping were evaluated (3.5" and 5.5"). It was desired to have the section, both westbound lanes, traffic-ready as quickly as possible. At 6:00 a.m. on June 2nd, 1990, the section was closed to traffic, and grading and setting up the string line for the paver began. Concrete placement began at 10:35 a.m. that same morning. The last load was placed at 7:30 p.m. that night. Based on the compressive strength results, the surface was striped and open to traffic the next day, June 3rd at 10:35 a.m.

Note: Cylinders were tested according to ASTM C-39 by Ideal Cement Lab. Compressive strength results are averages of two or more breaks.

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Preliminary Test Pad Pour For Dove Lane Fast Track Paving Project

Weights per cubic yard, SSD

Mix Design No.	Concrete Mix Designs		
	Mix 1 Control	Mix 2 Super 6	Mix 3 Super 6
Cement Box Crow Type I, lbs	564	564	564
Fritz Compacted Silica Fume, lbs	0	0	42.3
Natural Sand, lbs	1269	1365	1269
1" Crushed Limestone, lbs	1840	1840	1840
Water, lbs	250	188	216
AEA, oz./cu yd	3.9	4.4	5
Supercizer 6, oz./cwt	0	12	8
Water-Cement Ratio	.443	.333	.383
Water Reduction, %	0.0	24.8	13.6

Compressive Strength Results, psi

Age	Mix 1	Mix 2	Mix 3
12 Hours	2990	4850	3790
24 Hours	3870	5890	4940
2 Days	4450	6610	5480
3 Days	4950	7150	6100
7 Days	5580	7660	6500
14 Days	6080	8370	7900
28 Days	6590	9040	8700
Slump, inches	1.75"	2"	3"
Air %	3.5%	5.5%	5.2%

Flexural Strength Results, psi

Third-Point Loading

12 Hours	395	555	550
24 Hours	600	740	685
14 Days	910	960	885
28 Days	880	950	955

Center-Point Loading

7 Days	960	1045	1135
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All strength results are averages of two specimens.
All testing was performed according to ASTM specifications and reported by Southwestern Laboratories, Dallas, Texas.

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HIGH-RANGE WATER REDUCER

TEST DATA

Location: Sysco Foods Loading Dock/Parking Area, Houston, TX
Contractor: Dillard & Weaver
Design Requirements: 3000 psi 12 hours, 8" ± 1" Slump

MIX DESIGN (per cubic yard)	MIX 1	MIX 2
Cement Type III Capital	700 lbs	700 lbs
Fine Aggregate 1	1173 lbs	1173 lbs
Coarse Aggregate	1800 lbs	1800 lbs
Admixtures SUPERCIZER 6	8 oz./cwt	8 oz./cwt
Normal W/R	8 oz./yd ³	12 oz./yd ³
AEA	2.5 oz./yd ³	2.5 oz./yd ³
Water-Cement Ratio	0.32	0.37

TEST DATA	MIX 1	MIX 2
Slump, inches	8"	8.5"
Air Temperature, °F	96 °F	99 °F
Concrete Temperature, °F	99 °F	101 °F

As ambient and concrete temperatures increased, the dosage rate of the normal water reducer was increased to control slump life.

Compressive Strength, psi

Age	MIX 1	MIX 2
6 Hours	4940	4480
9 Hours	5410	5150
12 Hours	5870	5700
7 Days	7540	7890
28 Days	7870	8160

SUMMARY: Sysco Foods Distribution Terminal in Houston, Texas, required that their loading dock/parking area be shut down after working hours on Friday night, June 15th, and that their loading area be available for use by 5:00 a.m. Monday morning. The existing concrete was removed and the subgrade was stabilized with four to twelve inches of crushed limestone. Forms were then set and final site preparations completed. On Saturday afternoon, 550 cubic yards of concrete were pumped into place and finished. On Sunday morning, the loading area was opened to traffic; 24 hours early.

Note: Cylinders were tested according to ASTM C-39 by Ideal Cement Lab. Compressive strength results are averages of two or more breaks.

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HIGH-RANGE WATER REDUCER

TEST DATA

Location: Houston, Texas

Design Requirements: 3000 psi 8 hours, Type III Cement

MIX DESIGN (per cubic yard)	Control	SUPERCIZER 6
Cement Type III Capital	700 lbs	700 lbs
Fine Aggregate 1	1173 lbs	1173 lbs
Coarse Aggregate	1800 lbs	1800 lbs
Admixtures SUPERCIZER 6	0 oz./cwt	8 oz./cwt
Normal W/R	2.5 oz./cwt	2.5 oz./cwt
AEA	2.5 oz./yd ³	2.5 oz./yd ³
Water-Cement Ratio	0.30	0.30
Test Data	Control	SUPERCIZER 6
Slump, inches	0.5"	6.5"
Air Temperature, °F	89 °F	89 °F
Concrete Temperature, °F	93 °F	95 °F

Control mix was sampled immediately after batching. Vibration was required to consolidate. SUPERCIZER 6 was added and mixed 7 minutes. Fifteen minutes after addition: 9.5" slump. Forty-five minutes after addition: 6.5" slump and samples were made. Normal water reducer was used to control slump life.

Compressive Strength Results, psi

Age	Control	Supercizer 6	Percent of Control
4 Hours	1400	1400	100%
5 Hours	2600	2650	102%
6 Hours	3350	3900	116%
7 Hours	3800	5050	133%
8 Hours	3950	6000	152%
24 Hours	4840	7660	158%
3 Days	5580	9140	163%
7 Days	5970	9470	159%
14 Days	6320	9860	156%
28 Days	6950	10440	150%

Note: Cylinders were tested according to ASTM C-39 by Ideal Cement Lab. Compressive strength results are averages of two or more breaks.

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