



# CEMSTONE TECHNICAL MEMO

May 2013

**PRODUCT:** ARIDUS – Rapid Drying Concrete

**APPLICATION:** Interior concrete slabs receiving a floor covering which use water based adhesives

**WARRANTY:** The relative humidity will be less than 80% within 45 days to eliminate project delays

## EXHIBIT 1

Cemstone's ARIDUS mix design has been achieving 80% relative humidity on average in 22 days. The following results are the relative humidity at 43 days performed by AET.

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ASTM:F2170-11, "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using In-Situ Probes."		
<b><u>RESULTS</u></b>		
Probe No.	Temperature	Relative Humidity
1	76°F	59%
2	Probe Failure	Probe Failure
3	66°F	68%
4	68°F	61%
5	75°F	60%

## EXHIBIT 2

Cemstone's ARIDUS mix design has great strength performance. The compressive strength routinely achieves over 5000 psi in only 7 days.

<b>Placement Information:</b>					
Set No:	14 A - D	Concrete Supplied By:	Cemstone		
Date Cast:	11/20/2012	Mix No:	ARIDUS1		
Cast By:	Jeff Johnson	Truck No:	2950085		
Date Received in Laboratory:	11/21/2012	Placement Method:	Power Buggy		
<b>Plastic Properties:</b> (ASTM:C143, ASTM:C231, ASTM:C1064)					
Slump, in:	8.5	Air Content, %:	2.1	Concrete Temp, F°:	64
<b>Placement Location:</b> Interior slab-on-grade: Grid 0-2, C-G.4					
Cylinder No.	14 A	14 B	14 C	14 D	
<b>Cylinder Information</b>					
Weight (lbs):	8.70	8.80	8.80		
Height (in.):	8.00	8.00	8.00	8.00	
Diameter (in.):	4.00	4.00	4.00	4.00	
Cross-sectional area (sq. in.):	12.57	12.57	12.57	12.57	
Cylinder condition/preparation:					
<b>Curing Information</b>					
Test date:	11/27/2012	12/18/2012	12/18/2012	Lab Hold	
Days on site:	1	1	1	1	
Days in curing:	6	27	27		
Age at testing(days):	7	28	28		
<b>Test Information</b>					
Load at Failure (lbs.):	88,830	124,180	119,600		
Strength at Failure (PSI):	7,070	9,880	9,510		
Specified Strength (PSI):	3,500	3,500	3,500	3,500	
Type of Failure:	Side Fracture	Cone	Cone		
<b>Conformance:</b> The 28-day test result meets the specified design strength. Verbally authorized to use by Gunderson					



**EXHIBIT 3**

Cemstone ARIDUS mix design greatly reduces shrinkage unlike conventional concrete which shrinks about 0.03 to 0.05%.

<b>AET JOB NO:</b> 05-05684	<b>DATE:</b> JANUARY 30, 2013		
Sample Size: 4" x 4" x 10"			
Curing Period: 28 days (27 days in lime saturated water)			
Test Method: ASTM C157-modified curing length and air drying (28 days) Length change during drying period based on initial (24-hour) length			
Length Change, %	1	2	3
28 days in lime water	0.016	0.012	0.012
3 days in air	0.016	0.012	0.009
7 days in air	0.013	0.006	0.009
14 days in air	0.006	0.004	0.003
21 days in air	0.003	0.004	-0.004
28 days in air	-0.003	-0.004	-0.004

**EXHIBIT 4**

Cemstone's ARIDUS mix design reduces curling since the slab dries out uniformly, unlike convention concrete which dries from the top down.

**TEST RESULTS OF FLOOR FLATNESS/LEVELNESS TESTING  
CEMSTONE ARIDUS TESTING  
PARK TOOL  
5115 HADLEY AVENUE NORTH  
OAKDALE, MINNESOTA  
AET PROJECT No. 05-05684  
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**TEST RESULTS**

Run	1 – Day 11/21/2012		6 – Days 11/26/2012		10 – Days 11/30/2012		28 – Days 12/18/2012	
	F <sub>r</sub>	F <sub>l</sub>	F <sub>r</sub>	F <sub>l</sub>	F <sub>r</sub>	F <sub>l</sub>	F <sub>r</sub>	F <sub>l</sub>
A	50.9	33.2	49.2	32.4	49.5	33.5	43.7	31.4
B	44.0	25.8	52.6	26.1	47.4	29.8	45.1	30.9
C	45.7	26.3	55.9	25.0	55.4	27.2	55.1	20.0
D	38.9	24.9	41.7	26.9	42.4	26.9	40.1	26.7
E	58.4	46.0	42.4	42.3	46.3	47.6	47.0	41.8
F	38.5	33.7	43.3	31.8	39.5	37.1	42.4	35.7
<b>Overall</b>	45.6	30.8	47.6	30.2	46.8	32.8	45.3	30.5

**For more information on ARIDUS contact:**

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