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Fine Aggregate 187/188
Final Report Date: 4/1/2015

PSP Enrollment #3879
University of Arkansas
Fayetteville, Arkansas USA

Submitted by sgwill@uark.edu on 2/20/2015 at 1:43 PM

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The Z-Score indicates the number of standard deviations from the average value. The Z-Score is determined by the following calculation:

$$Z\text{-Score} = (\text{Laboratory Test Result} - \text{Average Value}) / (\text{Standard Deviation})$$

The laboratory Rating calculation is based on the absolute value of the Z-Score (or number of standard deviations from the average). The following describes the laboratory Rating system:

- If Z-Score <= 1 Then Rating = 5
- If Z-Score > 1 And <= 1.5 Then Rating = 4
- If Z-Score > 1.5 And <= 2 Then Rating = 3
- If Z-Score > 2 And <= 2.5 Then Rating = 2
- If Z-Score > 2.5 And <= 3 Then Rating = 1
- If Z-Score > 3 Then Rating = 0

A negative sign on a Z-Score or Rating indicates that the laboratory's result was below the average, while a positive Z-Score or Rating indicates that the laboratory's result was above the average.

For more information on ratings, please review [Proficiency Sample Ratings: Being Average Has Never Been So Good](#).

Material Finer Than 75- μ m (No. 200) Sieve
Total Oven Dry Mass of Specimen Before Washing (0.1 g) - T11/C117

[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
1	1769	511.9	510.06	**	**	**	510.1	510.39	**	**	**	**	**	**

Material Finer Than 75- μ m (No. 200) Sieve
Percentage Finer than the 75- μ m sieve by washing (0.01 percent) - T11/C117

[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
2	1768	0.86	0.707	0.233	0.66	5	0.90	0.734	0.255	0.65	5	0.069	0.13	5

Sieve Analysis of Aggregates
Total Material Passing the 4.75-mm (No. 4) Sieve (0.1 percent) - T27/C136

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Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
3	1775	99	98.58	**	**	**	99.3	98.62	**	**	**	**	**	**

Sieve Analysis of Aggregates
Total Material Passing the 2.36-mm (No. 8) Sieve (0.1 percent) - T27/C136

[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
4	1774	84.1	84.45	0.16	-2.22	-2	86.3	86.31	0.08	-0.19	-5	0.11	2.08	2

Sieve Analysis of Aggregates
Total Material Passing the 1.18-mm (No. 16) Sieve (0.1 percent) - T27/C136

[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
5	1775	72.0	72.12	0.39	-0.31	-5	74.5	74.18	0.38	0.85	5	0.20	1.58	3

Sieve Analysis of Aggregates
Total Material Passing the 600- μ m (No. 30) Sieve (0.1 percent) - T27/C136

[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
6	1775	51.5	51.75	0.77	-0.32	-5	53.6	53.31	0.78	0.37	5	0.27	1.43	4

Sieve Analysis of Aggregates
Total Material Passing the 300- μ m (No. 50) Sieve (0.1 percent) - T27/C136

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Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
7	1775	20.6	20.49	0.77	0.14	5	21.0	20.93	0.79	0.09	5	0.21	-0.13	-5

Sieve Analysis of Aggregates
Total Material Passing the 150- μ m (No. 100) Sieve (0.1 percent) - T27/C136

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Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
8	1775	3.8	3.44	0.36	0.99	5	3.8	3.44	0.37	0.96	5	0.11	0.00	-5

Sieve Analysis of Aggregates
Total Material Passing the 75- μ m (No. 200) Sieve (0.01 percent) - T27/C136

[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
9	1773	0.96	0.819	0.240	0.59	5	0.96	0.844	0.259	0.45	5	0.079	-0.22	-5

Fine Aggregate Specific Gravity and Absorption
Bulk Specific Gravity [or Relative Density, Oven Dry for C128] - T84/C128
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
10	1590	2.618	2.6064	0.0132	0.88	5	2.616	2.6059	0.0130	0.78	5	0.0067	-0.15	-5

Fine Aggregate Specific Gravity and Absorption
Bulk Specific Gravity, SSD [or Relative Density, SSD for C128] - T84/C128
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
11	1590	2.631	2.6228	0.0107	0.77	5	2.629	2.6223	0.0108	0.62	5	0.0056	-0.19	-5

Fine Aggregate Specific Gravity and Absorption
Apparent Specific Gravity [or Apparent Relative Density for C128] - T84/C128
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
12	1590	2.652	2.6503	0.0095	0.18	5	2.652	2.6501	0.0096	0.20	5	0.0050	0.03	5

Fine Aggregate Specific Gravity and Absorption
Absorption (0.01 percent) - T84/C128
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Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
13	1586	0.48	0.626	0.160	-0.91	-5	0.52	0.629	0.160	-0.68	-5	0.069	0.38	5

Micro-Deval Abrasion
Micro-Deval Abrasion Loss (nearest 0.1%) (0.1 percent) - D7428
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
14	51	--	6.53	1.16	--	--	--	6.54	1.12	--	--	--	--	--

Sand Equivalent Test
Sand Equivalent Value (whole number) (whole number) - T176/D2419
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
15	906	--	79.0	3.8	--	--	--	79.4	3.7	--	--	--	--	--

Sulfate Soundness of Aggregates
Material Finer Than the 1.18-mm Sieve, Na (0.01 percent) - T104/C88
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
16	327	--	2.063	1.116	--	--	--	1.997	1.106	--	--	--	--	--

Sulfate Soundness of Aggregates
Material Finer Than the 600-µm Sieve, Na (0.01 percent) - T104/C88
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
17	327	--	1.540	0.819	--	--	--	1.496	0.813	--	--	--	--	--

Sulfate Soundness of Aggregates
Material Finer Than the 300-µm Sieve, Na (0.01 percent) - T104/C88
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
18	327	--	1.425	0.814	--	--	--	1.430	0.833	--	--	--	--	--

Sulfate Soundness of Aggregates
Material Finer Than the 1.18-mm Sieve, Mg (0.01 percent) - T104/C88
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
19	145	--	6.777	4.157	--	--	--	6.846	4.224	--	--	--	--	--

Sulfate Soundness of Aggregates
Material Finer Than the 600-µm Sieve, Mg (0.01 percent) - T104/C88
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
20	145	--	4.852	2.700	--	--	--	4.711	2.494	--	--	--	--	--

Sulfate Soundness of Aggregates
Material Finer Than the 300-µm Sieve, Mg (0.01 percent) - T104/C88
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
21	145	--	4.017	2.134	--	--	--	3.958	1.962	--	--	--	--	--

Uncompacted Void Content of Fine Aggregate
Uncompacted Voids, Test Run # 1 (0.01 percent) - T304/C1252
[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating

	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
22	648	45.25	45.372	**	**	**	45.36	45.431	**	**	**	**	**	**

Uncompacted Void Content of Fine Aggregate

Uncompacted Voids, Test Run # 2 (0.01 percent) - T304/C1252[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
23	648	45.18	45.368	**	**	**	45.36	45.434	**	**	**	**	**	**

Uncompacted Void Content of Fine Aggregate

Uncompacted Voids, Average of Two Runs (0.01 percent) - T304/C1252[View Youden Diagram](#) | [View Performance Chart](#)

Sample 187							Sample 188					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
24	649	45.21	45.363	0.533	-0.29	-5	45.36	45.425	0.528	-0.12	-5	0.239	0.26	5

** Ratings Suppressed

-- No Data Submitted or Data Out of Accepted Range

**** Suppressed Items:****Material Finer Than 75-µm (No. 200) Sieve** (Total Oven Dry Mass of Specimen Before Washing) - For informational purposes only.**Sieve Analysis of Aggregates** (Total Material Passing the 4.75-mm (No. 4) Sieve) - For informational purposes only.**Uncompacted Void Content of Fine Aggregate** (Uncompacted Voids, Test Run # 1) - For informational purposes only.**Uncompacted Void Content of Fine Aggregate** (Uncompacted Voids, Test Run # 2) - For informational purposes only.

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