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AASHTO Materials Reference Laboratory **Individual Enrollment Rating Sheet** 

Soil Classification and Compaction 171/172 Final Report Date: 4/22/2015

PSP Enrollment #3879 University of Arkansas Fayetteville, Arkansas USA

Submitted by sgwill@uark.edu on 3/18/2015 at 12:07 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-Score = (Laboratory Test Result - Average Value) / (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</li>
   If Z-Score > 2 And <= 2.5 Then Rating = 2</li>
   If Z-Score > 2.5 And <= 3 Then Rating = 1</li>
- 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

Particle Size Analysis of Soils by Hydrometer

Total material passing the 2.00-mm (No. 10) sieve (0.1 percent) - T88/D422

view you	iden Dia	gram view	Perrorman	ce Chart									/		
				Sample 171					Sample 172			Repeatability(within-lab)			
	Total	Lab Data	Avg	15	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	15	Z-Score	Lab	
	Labs													Rating	
1	1217		99.56	**	**	**		99.46	**	**	**	**	**	**	

Particle Size Analysis of Soils by Hydrometer

Total material passing the 0.425-mm (No. 40) sieve (0.1 percent) - T88/D422 View Youden Diagram | View Performance Chart

				Sample 171					Sample 172			Repeata	Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	15	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	15	Z-Score	Lab Rating	
2	1216		74.73	2.03				73.98	1.97						

Particle Size Analysis of Soils by Hydrometer
Total material passing the 0.075-mm (No. 200) sieve (0.1 percent) - T88/D422
View Youden Diagram | View Performance Chart

_					Sample 171					Sample 172			Repeata	Repeatability(within-lab)		
		Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	15	Z-Score	Lab Rating	
	3	1220		52.55	1.49				51.94	1.35						

Particle Size Analysis of Soils by Hydrometer

Total material smaller than 0.02 mm (0.1 percent) - T88/D422

<u>View Youden Diagram</u> | <u>View Performance Chart</u>

		·		Sample 171					Sample 172			Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	15	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	15	Z-Score	Lab Rating	
4	1132		47.42	3.49				46.69	3.47						

Particle Size Analysis of Soils by Hydrometer

Total material smaller than 0.002 mm (0.1 percent) - T88/D422

View Youden Diagram | View Performance Chart

Sample 171								Sample 172					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	15	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	15	Z-Score	Lab Rating	
5	1129	-	22.91	3.42				22.88	3.36						

Particle Size Analysis of Soils by Hydrometer

Total material smaller than 0.001 mm (0.1 percent) - T88/D422

View Youden Diagram | View Performance Chart

•			<u>, , , , , , , , , , , , , , , , , , , </u>		Sample 171					Sample 172			Repeatability(within-lab)			
		Total Labs	Lab Data	Avg	15	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	15	Z-Score	Lab Rating	
	6	1122		15.56	3.15				15.83	3.18		-				

Liquid Limit of Soils (Atterberg Limits)

Liquid Limit (0.1 percent) - T89/D4318 View Youden Diagram | View Performance Chart

			·		Sample 171			Sample 172					Repeatability(within-lab)		
Г		Total	Lab Data	Avg	15	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	15	Z-Score	Lab
		Labs													Rating
	7	1525	27.4	26.77	2.02	0.31	5	31.4	29.53	2.14	0.88	5	1.05	0.84	5

Plastic Limit of Soils (Atterberg Limits)
Plastic Limit (0.1 percent) - T90/D4318

View Yo	/iew Youden Diagram  View Performance Chart													
				Sample 171				Sample 172			Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	15	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	1\$	Z-Score	Lab Rating
8	1524	13.5	14.13	1.17	-0.54	-5	13.4	14.25	1.23	-0.69	-5	0.47	-0.32	-5

Shrinkage Factors of Soils by Wax Method

Shrinkage Limit (Wax Method) (0.1 percent) - D4943 View Youden Diagram | View Performance Chart

		· · · · · · · · · · · · · · · · · · ·		Sample 171			Sample 172					Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1\$	Z-Score	Rating	Lab Data	Avg	15	Z-Score	Rating	1\$	Z-Score	Lab Rating	
9	64		10.52	1.15				10.71	1.32		-				

Specific Gravity of Soils Specific Gravity, Passing 2.00 mm (No. 10), TX / 20°C - T100/D854

View Youden Diagram View Performance Chart

Sample 171 Sample 172 Repeatability(within-lab) 15 Lab Data 15 Z-Score Total Lab Data Avg Z-Score Rating Avg Z-Score Rating 15 Lab Rating Labs 2.6553 0.0296 Moisture-Density (Proctor) of Soils, Standard Effort Optimum Moisture Content (Standard) (0.1 percent) - T99/D698 View Youden Diagram | View Performance Chart Sample 171 Repeatability(within-lab) Sample 172 Lab Data 15 Rating Lab Data Avg 15 Z-Score Rating Z-Score Total Avg Z-Score Rating Labs 11 1208 9.28 0.59 -0.48 9.67 0.56 0.06 0.37 0.60 Moisture-Density (Proctor) of Soils, Standard Effort Maximum Dry Density (Standard) (0.1 lb/ft³) - T99/D698 View Youden Diagram | View Performance Chart Sample 171 Repeatability(within-lab) Sample 172 Lab Data 15 Z-Score Rating Lab Data Avg 15 Z-Score Rating 15 Z-Score Lab Rating Labs 12 1208 128.8 126.70 1.31 1.60 3 126.7 125.47 1.22 1.00 4 0.74 -0.83 Moisture-Density (Proctor) of Soils, Modified Effort **Optimum Moisture Content (Modified)** (0.1 percent) - T180/D1557 <u>View Youden Diagram</u> | <u>View Performance Chart</u> Sample 171 Repeatability(within-lab) Total Lab Data 15 7-Score Rating Lab Data Avg 15 Z-Score Rating 1S Z-Score Lah Rating 363 6.79 0.50 6.95 0.49 13 Moisture-Density (Proctor) of Soils, Modified Effort Maximum Dry Density (Modified) (0.1 lb/H³) - T180/D1557 View Youden Diagram View Performance Chart Sample 171 Sample 172 Repeatability(within-lab) Total Z-Score Rating 15 Z-Score Rating Z-Score Lab Data 15 Lab Data 15 Lab Avg Avg Labs Rating 14 135.87 1.38 1.32 363 Ratings Suppressed No Data Submitted or Data Out of Accepted Range \*\* Suppressed Items: Particle Size Analysis of Soils by Hydrometer (Total material passing the 2.00-mm (No. 10) sieve) - For informational purposes only.



