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## AASHTO Materials Reference Laboratory Individual Enrollment Rating Sheet

**Hot Mix Asphalt Ignition Oven 29/30**  
Final Report Date: 2/4/2015

**PSP Enrollment #3879**  
University of Arkansas  
Fayetteville, Arkansas USA

Submitted by sgwill@uark.edu on 12/18/2014 at 1:37 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:

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

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](#).

Asphalt Content by Ignition Method

**Initial (as received) Mass of AMRL Pre-Mixed HMA Sample (for information only) (0.1 g) - T308/D6307**

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

Sample 29							Sample 30							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	978	<b>1604</b>	1600.29	**	**	**	<b>1603.6</b>	1600.36	**	**	**	**	**	**	**

Asphalt Content by Ignition Method

**Correction Factor for Asphalt Binder Content (for information only) - T308/D6307**

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

Sample 29							Sample 30							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	980	<b>0.03</b>	0.072	**	**	**	<b>0.03</b>	0.072	**	**	**	**	**	**	**

Asphalt Content by Ignition Method

**Corrected Asphalt Binder Content (0.01 percent) - T308/D6307**

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Sample 29							Sample 30							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	983	<b>4.74</b>	4.694	0.089	<b>0.51</b>	<b>5</b>	<b>6.17</b>	6.008	0.091	<b>1.79</b>	<b>3</b>	0.059	<b>1.40</b>	<b>4</b>	

Mechanical Analysis of HMA

**Mass Removed by Washing Over the 75-µm (No. 200) Sieve (0.1 g) - T30/D5444**

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

Sample 29							Sample 30							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	968	<b>28.6</b>	40.27	**	**	**	<b>51.6</b>	56.15	**	**	**	**	**	**	**

Mechanical Analysis of HMA

**Total Material Passing the 12.5-mm (1/2 in.) Sieve (0.1 percent) - T30/D5444**

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

Sample 29							Sample 30							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	981	<b>90.7</b>	91.08	0.85	<b>-0.45</b>	<b>-5</b>	<b>94.5</b>	93.74	0.65	<b>1.16</b>	<b>4</b>	0.62	<b>1.29</b>	<b>4</b>	

Mechanical Analysis of HMA

**Total Material Passing the 9.5-mm (3/8 in.) Sieve (0.1 percent) - T30/D5444**

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

Sample 29							Sample 30							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	981	<b>79.0</b>	79.69	1.10	<b>-0.63</b>	<b>-5</b>	<b>86.9</b>	85.85	0.83	<b>1.26</b>	<b>4</b>	0.64	<b>1.92</b>	<b>3</b>	

Mechanical Analysis of HMA

**Total Material Passing the 4.75-mm (No. 4) Sieve (0.1 percent) - T30/D5444**

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Sample 29							Sample 30							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	981	<b>57.8</b>	59.05	1.54	<b>-0.81</b>	<b>-5</b>	<b>75.7</b>	74.84	1.15	<b>0.75</b>	<b>5</b>	0.68	<b>2.19</b>	<b>2</b>	

Mechanical Analysis of HMA

**Total Material Passing the 2.36-mm (No. 8) Sieve (0.1 percent) - T30/D5444**

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Sample 29							Sample 30							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	981	<b>39.7</b>	40.81	1.41	<b>-0.79</b>	<b>-5</b>	<b>62.0</b>	61.53	1.10	<b>0.43</b>	<b>5</b>	0.61	<b>1.83</b>	<b>3</b>	

Mechanical Analysis of HMA

**Total Material Passing the 1.18-mm (No. 16) Sieve (0.1 percent) - T30/D5444**

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

Sample 29							Sample 30							Repeatability(within-lab)	
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	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
9	980	<b>31.7</b>	32.62	1.25	<b>-0.74</b>	<b>-5</b>	<b>48.9</b>	48.42	1.03	<b>0.47</b>	<b>5</b>	0.57	<b>1.73</b>	<b>3</b>

Mechanical Analysis of HMA

**Total Material Passing the 600-µm (No. 30) Sieve** (0.1 percent) - T30/D5444[View Youden Diagram](#) | [View Performance Chart](#)

	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
Sample 29						Sample 30						Repeatability(within-lab)		
10	981	<b>20.0</b>	20.48	0.88	<b>-0.54</b>	<b>-5</b>	<b>29.9</b>	29.61	0.84	<b>0.35</b>	<b>5</b>	0.41	<b>1.33</b>	<b>4</b>

Mechanical Analysis of HMA

**Total Material Passing the 300-µm (No. 50) Sieve** (0.1 percent) - T30/D5444[View Youden Diagram](#) | [View Performance Chart](#)

	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
Sample 29						Sample 30						Repeatability(within-lab)		
11	981	<b>10.3</b>	10.53	0.45	<b>-0.52</b>	<b>-5</b>	<b>14.9</b>	14.96	0.41	<b>-0.15</b>	<b>-5</b>	0.23	<b>0.51</b>	<b>5</b>

Mechanical Analysis of HMA

**Total Material Passing the 150-µm (No. 100) Sieve** (0.1 percent) - T30/D5444[View Youden Diagram](#) | [View Performance Chart](#)

	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
Sample 29						Sample 30						Repeatability(within-lab)		
12	981	<b>4.9</b>	4.89	0.28	<b>0.04</b>	<b>5</b>	<b>7.0</b>	6.93	0.27	<b>0.25</b>	<b>5</b>	0.16	<b>0.25</b>	<b>5</b>

Mechanical Analysis of HMA

**Total Material Passing the 75-µm (No. 200) Sieve** (0.01 percent) - T30/D5444[View Youden Diagram](#) | [View Performance Chart](#)

	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
Sample 29						Sample 30						Repeatability(within-lab)		
13	981	<b>3.03</b>	3.100	0.179	<b>-0.39</b>	<b>-5</b>	<b>4.19</b>	4.300	0.162	<b>-0.68</b>	<b>-5</b>	0.116	<b>-0.24</b>	<b>-5</b>

\*\* Ratings Suppressed

-- No Data Submitted or Data Out of Accepted Range

**\*\* Suppressed Items:****Asphalt Content by Ignition Method** (Initial (as received) Mass of AMRL Pre-Mixed HMA Sample (for information only)) - This is for informational purposes only.**Asphalt Content by Ignition Method** (Correction Factor for Asphalt Binder Content (for information only)) - This is for informational purposes only.**Mechanical Analysis of HMA** (Mass Removed by Washing Over the 75-µm (No. 200) Sieve) - This is for informational purposes only.

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