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**Hot Mix Asphalt Ignition Oven 31/32**

Final Report Date: 2/5/2016

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

Submitted by sgwill@uark.edu on 12/21/2015 at 9:20 AM

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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](#)

View Touch Diagram | View Performance Chart

Sample 31							Sample 32				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	1002	1610.5	1600.96	**	**	**	1603.2	1600.52	**	**	**	**	**	**

Asphalt Content by Ignition Method

**Correction Factor for Asphalt Binder Content (for information only) - T308/D6307**[View Youden Diagram](#) | [View Performance Chart](#)

Sample 31							Sample 32				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	1002	0.09	0.097	**	**	**	0.09	0.097	**	**	**	**	**	**

Asphalt Content by Ignition Method

**Corrected Asphalt Binder Content (0.01 percent) - T308/D6307**[View Youden Diagram](#) | [View Performance Chart](#)

View Touch Diagram | View Performance Chart

Sample 31							Sample 32				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	1007	4.55	4.510	0.095	0.42	5	4.63	4.577	0.094	0.56	5	0.061	0.15	5

## Mechanical Analysis of HMA

**Mass Removed by Washing Over the 75- $\mu$ m (No. 200) Sieve** (0.1 g) - T30/D5444[View Youden Diagram](#) | [View Performance Chart](#)

Sample 31							Sample 32					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	992	<b>97.8</b>	75.93	**	**	**	<b>96.5</b>	82.16	**	**	**	**	**	**

## 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 31							Sample 32					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	1003	<b>90.3</b>	90.15	0.76	<b>0.20</b>	<b>5</b>	<b>90.1</b>	90.10	0.72	<b>0.00</b>	<b>5</b>	0.54	<b>-0.20</b>	<b>-5</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 31							Sample 32					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	1003	<b>81.7</b>	80.77	0.96	<b>0.97</b>	<b>5</b>	<b>80.8</b>	80.21	1.01	<b>0.58</b>	<b>5</b>	0.62	<b>-0.39</b>	<b>-5</b>

## Mechanical Analysis of HMA

**Total Material Passing the 4.75-mm (No. 4) Sieve** (0.1 percent) - T30/D5444[View Youden Diagram](#) | [View Performance Chart](#)

Sample 31							Sample 32					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	1003	<b>54.3</b>	53.93	1.50	<b>0.25</b>	<b>5</b>	<b>54.4</b>	54.69	1.49	<b>-0.19</b>	<b>-5</b>	0.58	<b>-0.80</b>	<b>-5</b>

## Mechanical Analysis of HMA

**Total Material Passing the 2.36-mm (No. 8) Sieve** (0.1 percent) - T30/D5444[View Youden Diagram](#) | [View Performance Chart](#)

Sample 31							Sample 32					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	1003	<b>38.3</b>	37.96	1.50	<b>0.22</b>	<b>5</b>	<b>39.7</b>	39.77	1.50	<b>-0.05</b>	<b>-5</b>	0.63	<b>-0.46</b>	<b>-5</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 31							Sample 32					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	1003	<b>26.9</b>	25.30	1.37	<b>1.17</b>	<b>4</b>	<b>26.8</b>	26.41	1.43	<b>0.27</b>	<b>5</b>	0.64	<b>-1.34</b>	<b>-4</b>

## Mechanical Analysis of HMA

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

Sample 31							Sample 32					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
10	1003	<b>18.4</b>	16.39	1.19	<b>1.69</b>	<b>3</b>	<b>17.6</b>	16.97	1.30	<b>0.48</b>	<b>5</b>	0.64	<b>-1.54</b>	<b>-3</b>

Mechanical Analysis of HMA

**Total Material Passing the 300- $\mu$ m (No. 50) Sieve** (0.1 percent) - T30/D5444

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

Sample 31							Sample 32					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	1003	<b>12.7</b>	10.97	0.91	<b>1.91</b>	<b>3</b>	<b>12.2</b>	11.43	1.03	<b>0.75</b>	<b>5</b>	0.51	<b>-1.34</b>	<b>-4</b>

Mechanical Analysis of HMA

**Total Material Passing the 150- $\mu$ m (No. 100) Sieve** (0.1 percent) - T30/D5444

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

Sample 31							Sample 32					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	1003	<b>9.2</b>	7.89	0.75	<b>1.74</b>	<b>3</b>	<b>9.2</b>	8.42	0.83	<b>0.94</b>	<b>5</b>	0.37	<b>-1.01</b>	<b>-4</b>

Mechanical Analysis of HMA

**Total Material Passing the 75- $\mu$ m (No. 200) Sieve** (0.01 percent) - T30/D5444

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

Sample 31							Sample 32					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	1003	<b>6.82</b>	5.694	0.635	<b>1.77</b>	<b>3</b>	<b>6.81</b>	6.165	0.698	<b>0.92</b>	<b>5</b>	0.314	<b>-1.08</b>	<b>-4</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)*) - For informational purposes only.

**Asphalt Content by Ignition Method** (*Correction Factor for Asphalt Binder Content (for information only)*) - For informational purposes only.

**Mechanical Analysis of HMA** (*Mass Removed by Washing Over the 75- $\mu$ m (No. 200) Sieve*) - For informational purposes only.



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