

TEST & EVALUATION REPORT

June 1, 2012

Report For: Hi-Lite Markings, Inc.
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Attn: Brad Dunn

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|---|---------------------------------|
| Sample ID: Test strip samples from Orlando International Airport | Project #: HILT 03-02-01 |
| Sample Date: 5/17/12 | Type: Top 3/8" of Cores |

OBJECTIVE: Evaluate pavement performance in accordance with the FAA P-632 Table 2 Bituminous Pavement Rejuvenation specifications.

DATA/RESULTS:

| PROPERTY | TEST METHOD | SPEC. FAA P-632 Table 2 | RESULTS: | | | | | | | |
|---|-------------|-------------------------|---------------------------------------|-----------|-----------------------------------|--------|-----------------------------------|--------|-----------------------------------|-----|
| | | | REJUVENATOR, GAL / SQ. YD. | | | | | | | |
| | | | Aged Pavement w/o Treatment (control) | 0.055 | | 0.065 | | 0.075 | | |
| | | | | Result | % Diff. ¹ From Control | Result | % Diff. ¹ From Control | Result | % Diff. ¹ From Control | |
| Recovered Asphalt (ASTM D 5404) | | | | | | | | | | |
| Absolute Viscosity, Poise | 60°C | ASTM D 2171 | ≥ 40% Decrease | >580,000 | 377,752 | N/A | 166,938 | N/A | 452,197 | N/A |
| Complex Modulus, G*, Pa | | AASHTO T 315 | ≥ 40% Decrease | 226,200 | 29,850 | -87 | 18,400 | -92 | 25,640 | -89 |
| Viscosity $\eta = G^* / \dot{\omega}$, Poise | | | | 2,262,000 | 298,500 | -87 | 184,000 | -92 | 256,400 | -89 |
| Phase Angle, δ , ° | | Report | 54.20 | 69.25 | 28 | 73.95 | 36 | 69.33 | 28 | |

1. % Difference from aged pavement without treatment, (-) stands for decrease (+) stands for increase

DISCUSSION: ASTM D 2172 (Method A) with toluene was used to extract the asphalt and ASTM D 5404 to recover the asphalt.

The control sample would not flow in a 580,000 Poise Viscometer, the aged material was too viscous to flow, test method not applicable. The results were reported as >580,000. Without knowing the actual value of the control sample a percentage of decrease cannot be calculated.

The amount the rejuvenator decreased the viscosity must be determined by AASHTO T 315, DSR method. All samples containing rejuvenator showed a decrease of greater than 40% of the control sample. The data suggests using rates less than 0.055 Gal / Sq. Yd. application rate should still meet the FAA P-632 Table 2 Specification.

It would be expected that the 0.075 Gal / Sq. Yd. application rate would show a greater decrease in viscosity. The more rejuvenator used the lower the viscosity should become. The application rate, sampling, or dilution of the rejuvenator was improper.

Tested by:
 Jimmy Ynigues, Pavement Technician

Date: June 1, 2012

Reviewed by:
 Matt Groh E.I.T., Pavement Services Manager

Date: June 1, 2012

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PRI's Accreditations: AASHTO/AAP; an ISO/IEC 17025 Lab

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