

Cold Mix Evaluation | Updated July 2009

Virginia Department of Transportation, Materials Division – Asphalt Program

Evaluation of Vialit Asphalt's Rephalt Cold Mix Patching Material (also known as Aquaphalt)

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On January 16th, 2008 the Virginia Department of Transportation's Materials Division Asphalt Program partnered with Vialit Asphalt of Austria to install a field evaluation site of the company's cold mix asphalt, Rephalt.

Evaluation Site:



A deteriorated patch on US 60 West in New Kent County at Bottoms Bridge was selected for the evaluation site. This site would typically be repaired with hot mix asphalt (HMA), however the site was rapidly deteriorating and no HMA facilities were operational, therefore a 'permanent' cold patch solution was required.

Figure 1, Evaluation site on US Route 60 West at Bottoms Bridge.

Traffic:

US 60 west parallels Interstate 64 and is a convenient rest-stop for interstate truck and car traffic. This section also services a local ready mix concrete producer as well as several logging operations.

Construction and Installation:

Weather:

The weather on the installation day was slightly overcast, cool and windy; the mean wind speed on the 16th was 6.5 mph with sustained gusts to 15mph. The previous and following night's low temperature was 23 degrees F with an average temperature of 34 degrees F. The ambient temperature during construction was 39 degrees F. The pavement temperature was 36 degrees F.



The existing distressed material was removed down to sound concrete. The leading half of the patch was found to be sound at a depth of approximately 5 to 6 inches (127 to 152.4 mm). The trailing half of the patch was deteriorated down to the subgrade in the center of the patch. The excavated patch was cleaned and blown free of loose debris, the deepest distressed portion was seated with a vibratory plate compactor.

Figure 2

Two lifts 0/11mm mix were used as base and binder layers. The 'jumping jack' compactor was used for compaction on all layers lower than the final surface. Approximately 1 liter of water was added to each 25kg bucket before placement and an additional liter was "sprinkled" on the loose material before compaction.



Figure 3



A final 0/8mm lift was placed for the final riding surface of the patch. Edges were pinched with the 'jumping jack' compactor.

Figure 4

Evaluating the Installation:



Figure 5, Evaluation site after one week of service.

Figure 6, Evaluation site as of 06/26/08.

Material has maintained a uniform profile, very little to no pushing or shoving and no rutting.

Figure 7



Tight joints have been maintained, material has not bled, or streaked away from the patch.

Figure 8



Final Recommendations:

Five primary distress types were evaluated in the 1997 VTRC report used to generate VDOT's existing approved list: bleeding, rutting / dishing (further compaction under traffic), debonding, raveling and pushing & shoving. The Rephalt material did not exhibit any quantifiable distress in these five categories.

To date the Rephalt cold mix material has met all expectations that the Virginia Department of Transportation has on cold mix patching materials.



Figure 9, Four year follow-up photo, January 2012