

## Limited Liability Company “SviagaDorStroy”

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To: President of Cantat Associates Inc, Alexander B. Zevin  
Director of LLC “Nova”, Marat R. Shigapov

### Letter of Feedback

Warm Mix Asphalt with Evotherm J1 additive was used in a road construction and paving project in the Zelenodolsk region, Republic of Tatarstan. The new road now connects the Sviyazhsk Interregional Multimodal Logistics Center with the M-7 Federal Highway (Moscow-Ufa). Two 205 L (203 kg) drums of the Evotherm J1 concentrate were used for the preparation of the warm mix. The drums were obtained from LLC “Nova”, Kazan.

The following components were used in the preparation of the warm asphalt mix:

- Aggregate material – 20-40 mm from the Minyar quarry, 5-20 mm from the Berdyaush quarry, coarse river sand.
- Bitumen – BND 90/130 from “JSC Ufaneftehim”, Bashkortostan Republic.

The Evotherm J1 additive was injected into the Amman Global 160 mixing plant in the amount of 0.3% of the bitumen content, or at a rate of 100 g per 1 tonne of asphalt mix. Mixing lasted 26 seconds. No mineral powder was used; instead, 1% of inert material dust was used.

A total quantity of 4000 tonnes of warm mix asphalt was obtained.

The first Evotherm J1 drum was used up at the environment temperature of +4°C, between October 14-17, 2011. The second drum was used up at -4°C, between November 14-18, 2011.

The mixing temperature was 150-155°C. The warm mix was hauled in heated Mercedes dump trucks. Haul distance – 95 km. Haul time – 2-3 hours.

The warm mix was laid at a temperature of 140°C.

Compaction could not be performed immediately due to the high temperature of the mix and a wait time of 15-20 minutes was required until the mix temperature had dropped to 100-110°C. The asphalt mix remained warm, ductile and allowed at least 45 minutes for compaction to take place.

Following the completion of the compaction procedure, a wait time of at least 2 hours was required before the road could be opened to traffic.

Pavement samples showed excellent compaction ( $k=1.0$ ), water saturation ( $w=5.0$ ) and average density ( $\gamma=2.42$ ).

Conclusion: Based on the obtained results, we believe that the utilization of Warm Mix Asphalt, prepared using the Evotherm J1 additive and technology provided by Canadian company "Cantat Associates Inc", extends the road paving season and allows paving to be performed at negative weather temperatures. Haul distance and time increase significantly. The mix maintains its temperatures for long periods of time, remains ductile and uniform. In addition, the mix is odourless, which is very important during laboratory testing.

Respectfully,  
Head of Laboratory  
Pashevich L.A.