

Paving for Bonus Issue

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This successful paving trial used Sripath Technologies' PGXpand to lay down a wear layer surface in Andhra Pradesh, India. Photos courtesy of Sripath Technologies

PGXPAND MAKES WAY FOR PMB IN INDIA'S HIGHWAY MIXES

Sripath Technologies® successfully conducted a joint trial with Cube Highways, paving a wear layer surface on a 1.25-mile (2-kilometer) stretch of SH-2 in Andhra Pradesh, India. State Highway SH-2 acts as a major roadway between National Highways NH-65 and NH-16, predominantly for heavy traffic between Hyderabad and Chennai.

As a provider of innovative products and solutions for asphalt pavement mixes, Sripath is a global company, reliably serving its customers with unmatched logistics and on-time deliveries. Cube Highways, based in Singapore, has one of the largest portfolios of new highway projects in India, and it used

A. R. Thermosets Pvt. Ltd. as the paving contractor for this trial.

Sripath's PGXpand® polymer was used for this trial to enhance the performance of a locally available VG-30 grade of liquid asphalt cement (AC) to produce the polymer modified bitumen (PMB).

In paving mixes, PGXpand has been shown to boost the high-temperature paving grade and pavement rutting properties, without adversely affecting the low-temperature grade and pavement fatigue performance. Imparting reduced viscosity in asphalt blends, PGXpand improves workability, and acts as a compaction aid. It readily mixes into the AC with low shear.

Prior to the trial, an independent study was conducted in India to verify the impact of PGXpand on improving properties and performance of VG-30 blends. These results became the basis for the trial pictured here. As seen in the table, the AC mix dosed with 1.5 percent PGXpand has similar properties to AC dosed with 3.5 percent SBS.

The AC was mixed with 1.25 to 1.5 percent PGXpand in 20 MT tanks equipped with rotary agitators. Workers found the PGXpand® easy to incorporate into the AC using existing equipment and operating procedures. They described the resultant mix as smooth, well coated and easy to lay down.

Properties of VG-30 Blends

Properties of VG-30 Blends	VG-30 Base	VG-30 + 3.5% SBS	VG-30 + 1.5% PGXpand®
Softening Point, °C	49	70	69
Penetration, dmm	53	41	41
PG High Grade, °C	64.1	74.5	84



Ravi Kumar is a paver operator

“The mixture was really very smooth. I could feel the difference from what we normally use,” explained Ravi Kumar, the paver operator. With experience paving roads and airstrips all over the world, including Afghanistan and the Middle East, Kumar shared his thoughts at the end of the trial: “The paving operation was noticeably easier. The auger remained clean—with no material sticking to it, unlike the SBS mix. We could even have paved at a lower temperature. Overall, I am really happy with the new mix laydown and compaction.”

Bhanoj Dokku of Cube Highways and H. P. Singh of A. R. Thermosets were also impressed with the ease of incorporating PGXpand into the AC using existing equipment and procedures; the excellent properties and workability of the mix; and the quality of the wear layer surface.

According to Sachin Raje of BitPath Pvt. Ltd. (Sripath’s affiliate in India): “The potential for cost savings while improving performance is a winning proposition for

Cube Highways and for the Indian bitumen industry.”

It appears that Sripath is at the forefront of an emerging consensus in India that more roadways need to be built using PMB to handle India’s future highway network and heavy traffic needs. According to Nitin Gadkari, Indian Minister of Road Transport and Highways, the ministry is looking into regulations to make the use of PMB mandatory in India. The ministry welcomes working with contractors and foreign experts to help India adopt successful technology or practices from around the world. India plans to construct 37,000 miles (60,000 km) of new roads and highways over the next five years.

In addition to PGXpand, Sripath offers a number of other additives for paving applications, including: NuMixer® and ReNUBIT® to improve low temperature performance; ReLIXER® to rejuvenate high levels of reclaimed asphalt pavement (RAP) and recycled asphalt shingles (RAS) mixes; PGXtend® to increase high temperature grade of asphalt; and SriCote™, an amine-free anti-stripping agent as a solution to demanding moisture-damage and fuel-resistant applications. Sripath also offers a range of products and solutions for roofing applications. **AP**

— BY DEEPAK MADAN, PH.D.

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