

## **STUDY ON THE USE OF "*EVOTHERM*" IN ASPHALT PAVEMENT CONSTRUCTION**

Various highly technical methods of effectively rehabilitating ageing concrete road/pavements are continuously being developed elsewhere. Supposedly, suitable methods for a particular area/setting must be adopted to insure that the performance of concrete road roads can be significantly improved. One such technology considered for tropical countries as the Philippines, is the rehabilitation of Portland Cement Concrete Pavement (PCCP) with asphalt overlay. The particular technology introduces the use of Evotherm as an innovative warm mix asphalt technology that includes additives to improve coating, surfactants to enhance aggregate-binder adhesion, and agents to promote workability and compaction. It can be added at the asphalt terminal or at the mix plant and is useful for producing warm mix asphalt based on all common formulation ingredients, including modified and unmodified asphalt binders, asphalt rubber, silicate and calcareous aggregates, and Reclaimed Asphalt Pavement (RAP).

The use of Evotherm allows mix producers and pavement contractors to realize temperature reductions of 35 to 50°C (60 to 90°F) compared to the conventional HMA. Lower temperatures mean less fuel consumption, lower stack emissions, and less fume and odor generation at the plant and job site. Lower temperatures also mean less binder oxidation, which should result in greater crack resistance and longer pavement service life.

To verify further the performance as well as the adoptability of the said technology, the Department of Public Works and Highways through the Bureau of Research and Standards constructed a pilot project incorporating Item 310 - Bituminous Concrete Surface Course Grading B maximum 3/4 aggregates with Evotherm (asphalt overlay on existing ACP) work along Arayat-Magalang-Mabalacat Road, Km. 109+000 to Km. 109+500, Magalang, Pampanga, implemented by DPWH-Region III, Pampanga Third District Engineering Office with coordination with R.A. Kelman, Inc. as proponent and Mr. Stephane Charmot as the technical consultant.

Four (4) out of ten (10) blocks passed/met the Skid Resistance minimum value of 55 for motorway, truck and class 1 roads and trafficked roads carrying more than 2000 vehicles per day as recommended by the UK Department for International Development Overseas Road Note 18.

On the other hand, the Texture Depth of three (3) out of ten (10) test blocks using Sand Patch Method Test passed/met the recommended value of not less than 0.50 mm. as per UK for bituminous/concrete pavement.

As per Department Order No. 189, Series of 2002, the pilot project will be continuously monitored once per quarter for another 3 months.

The conduct of construction and monitoring of the pilot project resulted to some individual blocks exhibited lower than recommended Skid Resistance Value (SRV). Several surface defects were noted such as bleeding, minor raveling, and potholes in the completed asphalt pavement.

It is therefore recommended to continue monitoring the first small-scale pilot project. The second small-scale pilot trial will be implemented by DPWH Quezon City First DEO along Tandang Sora Ave. Extension, Quezon City. The construction and monitoring of the latter will supplement the first small-scale pilot project's monitoring results.