TOP-SEAL BLACK™

Surface Coating for Unpaved Roads

TOP-SEAL BLACK

UNPAVED ROADWAYS –DRIVEWAYS –PARKING LOTS –AIRFIELDS

COST-EFFECTIVE ALTERNATIVE TO ASPHALT ROADS

TOP-SEAL BLACK (TSB) ™ is an environmentally safe, non-petroleum based surface coating for unpaved roads, parking lots, and airfields. When properly applied in sufficient quantities, a completed application with TSB will closely resemble an asphalt wearing surface at only a fraction of the cost.

Top-Seal Black application in Central Texas

TSB was invented at the University of Texas at Austin. It is patented by the university and licensed to Eco Estates International, Inc. The product is uniquely adapted to a market in which there are very limited options for cost-effective alternatives to an asphalt wearing surface.

TSB's performance is maximized when used in combination with its sister product, Top-Seal White (TSW) *Liquid Soil Sealant and Stabilizer*. As a highly effective liquid base stabilizer, Top-Seal White's proven capacity for dramatic improvement of soil strength and impermeability makes it a foundationally perfect match for TSB applications. Please contact EEI International for more information on TSW.

TSB is the premier product of choice when an asphalt wearing surface cannot be afforded or is simply not needed for low-volume traffic environments. In its applied and cured state, TSB has a unique resemblance to asphalt and typically cannot be distinguished from it by the average person.

TSB is easy to use. There are no special equipment or handling procedures for using the product. Simply dilute TSB with water in a holding tank and distribute over the area of coverage. TSB is an excellent choice significant improvement of unpaved roads. Please contact Eco Estates International, Inc. for more information on TSB.

For More Information on Top-Seal Black ™ and business opportunities, contact:

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LOW COST PAVEMENT PRESERVATION

DOWEL BAR RETROFITS

Investigation of Curing Time and Strength Development of Prime Coat Materials

By Juan Du

The University of Texas-Austin initiated a series of research studies to investigate prime coat properties.

The first study aims at capturing the effect of weather conditions, application method and type of prime coat on curing time, and also to look into prime coat's other properties such as penetration, permeability and strength.

The second research study focuses on how long it takes for prime coat materials to achieve maximum strength, investigating the relationship between weight loss and strength growth. There is a relationship between weight loss and strength gain, and an experiment was conducted at a TxDOT laboratory to discover the actual relationship. This article summarizes the results of the second experimental study.

To make the results comparable to the first study, the researcher kept the prime coat materials, base material, application method and application rate, etc. the same as the first experiment. Prime coat materials used were MC-30, CSS-1h, SS-1h, AEP, EC-30 and TSB. The base material chosen was limestone, which is most commonly used in Texas. Two application methods, spray on and mixed-in, were used to prepare the specimens.

The test was conducted during the summer of 2011, when average temperature ranged from 73.6 to 101.5 deg F, and average relative humidity was 55.5 percent. The sample was not left outside to cure during rainfall.

The strength and weight of samples was tested every 24 hours. Unconfined compressive strength of primed base samples was tested using a pocket penetrometer. The measurement is done by inserting the shaft to a ¼-in. depth with a smooth constant force into the soil sample. Once the penetrometer is ¼-in. deep, a reading is taken from the top of the indicator ring. One interval on the scale represents 1 kg per sq. cm. (14.2 psi). For each type of prime coat and each application method, three samples were prepared to reduce the random effect that may influence the accuracy of the results.

The curing of prime coat is assumed to end when the reduction in weight drops below 0.1 gram, or when the strength reaches its maximum value, whatever occurs later.

This testing brings the following conclusions:

- TSB has the highest strength among all the prime coat materials
- TSB cures the fastest among all the prime coat materials
- AEP has the lowest strength among all the prime coat materials
- MC-30 cures the slowest, up to 240 hours
- Application methods (spray-on or mix in) have no significant impact on curing time, and
- Application methods have significant impact on unconfined compressive strength; mixed-in type applications have higher strength than sprayed-on type applications.

The curing time and unconfined compressive strength for all prime coat materials are summarized in Fig. 1. For more information on this study please visit www.utexas.edu/research/tppc/news/newsletter_issue_23.pdf.

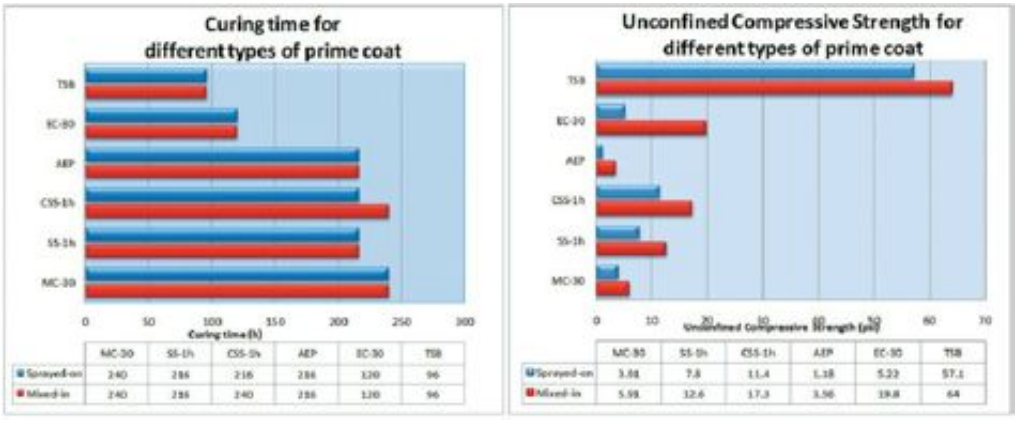

Fig. 1: Curing time and strength comparison between prime coats

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