FAA/NASA Evaluation of Friction Characteristics

Summary: Coal-Tar **Rejuvenator/Sealers** containing coal tar, coal tar oils, and petroleum solvents have become a significant maintenance and rehabilitation product for airfield improvement programs.

Although Rejuvenator/Sealers have been used on a number of airports, few studies have been done on the effects of the sealant on the pavement's friction. It was known that some loss of microtexture was inevitable as application of the rejuvenator leaves a thin layer of coal-tar over exposed aggregate. Previous testing seemed to confirm that while there was a decline, the resulting friction was similar to that associated with new asphalt pavement.

Tests were conducted May 11-14, 1998 at the NASA test facility on Wallops Island during the annual **FAA/NASA "Tire Runway Friction Workshop".** [6] The tests were to determine the amount of reduction, if any, and further to determine if alternate practices could be employed to mitigate any reduction. The conclusion of the tests was that on the specific Wallops taxiway, the reduction was less then 10% from the untreated pavement. Further, the reduction in friction could be lessened with an application of quality aggregate of specific grading.

The taxiway was tested using three different situations that were done side-by-side in 300 ft. x 7 ft. strips. The first strip was the application of the sealer at a rate of 0.055 gal/sq. yd. Directly following the treated strip, a 300 ft. stretch of pavement was left untreated. The third test area immediately followed the untreated area. It had an application similar to the first area but had an added application of Black Beauty sand at the rate of 0.5 to 1.0 pounds per square yard on top. The sand was added to the test for an increase in the friction coefficient.

Results: Two sets of data were collected for the friction runs. The first, labeled **MuF,** found that with no treatment the pavement surface had an average friction coefficient of 48.7, a treated friction average of 43.9, and a treated pavement with sand average friction of 45.1. The detailed data can be seen in graph form on the following page. **The average friction of the treated surface is above the minimum friction required of the FAA.** The application of sand increased the friction an average of 10%. thus proving that the sand is an added benefit to the coating and **that the coating itself does not reduce the friction sufficiently to require operational concerns.**

The second set of data **MuFD** (see next page) found that with no treatment the pavement surface had an average friction coefficient of 56.0, a treated friction average of 50.8, and a treated-with-sand average friction of 53.3. ***Here again the average friction of the treated sections lies above the required minimum from the FAA. With the addition of Black Beauty sand, the average lies above the Maintenance Planning level FAA standard.***

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[6] Rejuvenator/Sealer was supplied and applied by PRT-Group members R.E. Rowles Asphalt Inc., and Echelon Industries Inc.

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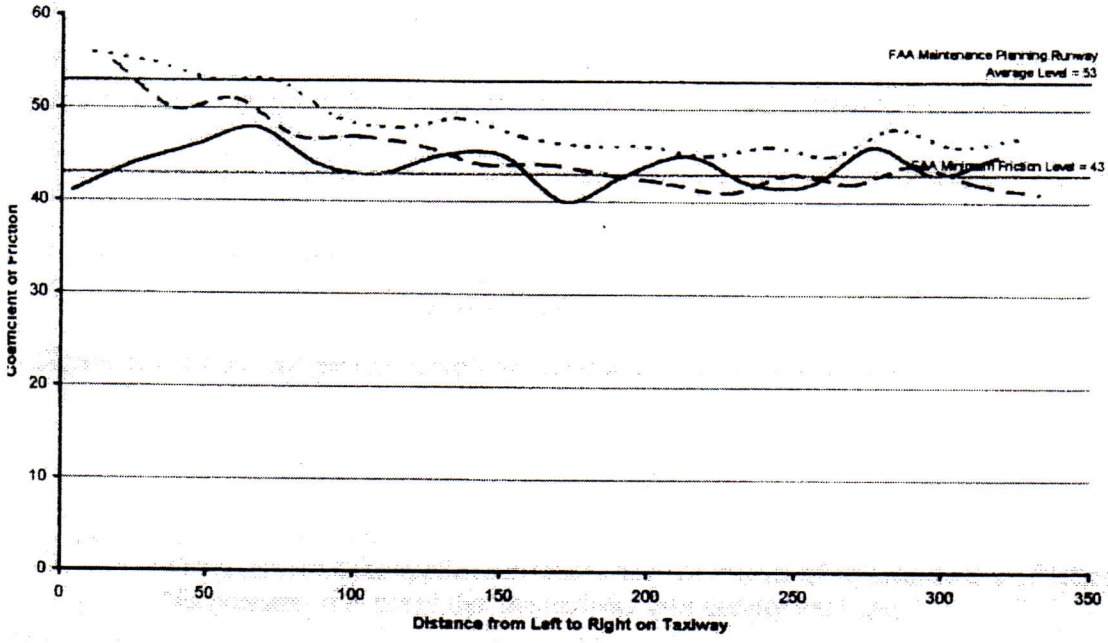
Following Application of Coal Tar Rejuvenator/Sealer

Comparison between Treated and Untreated Surfaces

_____Treated _ _ _ _ Untreated ___ ___ Treated with Black Beauty Sand

Test "MuF"



Test "MuFD