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RESEARCH UPDATE

Update U97-7

EPOPLEX EPOXY PAVEMENT MARKINGS**REFERENCE:**

WP 94-R-23, U94-16, U95-2, U96-16.

INSTALLATION:

EPOPLEX epoxy pavement markings were applied on November 16, 1994, as edge and centerline on 1.73 miles of US 302 as part of the Barre F 026-11(36)S project. The ambient and surface temperatures were 40°F and 43°F, respectively. Tests indicated that the average thickness of the epoxy was 23 mils. The material developed a dry, durable skin, so that no vehicle tracking problems were noted. It took approximately 20 minutes to totally dry through, due to the cold conditions.

PRODUCT:

EPOPLEX LS5, a two component, 100% solids, epoxy coating material was selected for this project. LS5 is designed to be a rapid setting highway marking offering durability and abrasion resistance. Drying time is estimated to be 10 minutes at 77°F. The material was applied by Traffic Markings Inc. of Franklin, MA.

HISTORY:

The project was surveyed for durability and reflectivity after 6 months of service, on April 18, 1995, and received an excellent rating. Retroreflectivity readings averaged 140, 309, and 160 millicandelas (mcd) for the white edge line. No readings were taken on the centerline. It was noticed that the centerline had some slight scalloping which occurred at random locations on one quarter to one third of the project length. Edgeline damage was limited to only a few occasional 2" by 2" chips. These losses were most likely due to snowplow scraping. Upon inspection in 1996, this damage had increased with some parts of the center line missing. The average reflectivity readings were 45 mcd for the yellow centerline and 106 for the white edgeline. The 1996 readings were measured by a LTL 2000 reflectometer while the 1995 readings used a Mirolux 12.

STATUS:

The epoxy markings, were inspected again on July 14 and 17, 1997. Overall the markings are very legible, with only a few more areas of loss than in 1996. Even with this loss, the line has remained visible to drivers and is performing as would be expected after 2 winters of exposure. Retroreflectivity was measured with an *Ecodyn* mobile retroreflectometer, and had dropped to 94 mcd for the white edgeline and less than 40 mcd for the yellow center line. The reading for the centerline was actually 0, but the machine had its low threshold set at 40 mcd, i.e., it would not read anything below that point. These readings can be compared to those readings from the LTL 2000 but not the MiroLux 12, as the geometry is not the same (30 meter vs. 15 meter).

COST:

If the material is remarked this year the estimated annualized cost per linear foot would be \$0.09 vs. \$0.05 for waterborne traffic paint. If remarking is held off until 1998, the annualized cost becomes \$0.07 vs. \$0.05 per linear foot. If increased legibility and durability of the markings during the first few years is taken into account, then the epoxy markings may equal the paint in terms of true cost. At this time, however, there is no way to quantify this.

RECOMMENDATION:

The material may last another year, but retroreflectivity is already at a point that would necessitate remarking. The VAOT unofficial low limit of retroreflectivity is 100 mcd and both readings are below that level at this time. It is recommended that this material be evaluated for one more year and that the test site not be remarked until 1998. This will facilitate gathering more retroreflectivity data.