USE OF REAGENT GRADE VERSUS INDUSTRIAL GRADE TRICHLORETHYLENE IN ASPHALT RECOVERIES

Objective

This is a continuation of a project initiated a year ago to determine any differences in test results on recovered asphalt cements caused by the use of industrial grade of solvent as compared with the reagent grade. AASHTO specifies the use of reagent grade of trichlorethylene, but the Laboratory uses industrial grade which costs much less.

Last year this objective of the project was aborted when it was found that a larger difference in test results was obtained between the two distillation apparatuses than between the two solvents. Then all efforts were directed toward obtaining uniformity in test results between the apparatuses under the east hood as compared with that under the west hood. Considerable progress was made toward this end. (See report under this same title dated April 1982).

The objective this year was to again evaluate the results when using both variables (apparatuses and solvents). Another objective developed later in this investigation; this was to determine any differences in test results on recovered asphalt cements caused by the use of reclaimed trichlorethylene (from the distillation process) as compared with the use of industrial grade of solvent. At the present time the reclaimed trichlorethylene is discarded. If the reclaimed solvent could be used for further recoveries, a considerable savings in solvent costs would result.

Materials

Industrial grade trichlorethylene was obtained from Barton Solvent Co. in Des Moines which is our normal supply source.

Reagent grade trichlorethylene was obtained from Iowa State University Chemistry Store.

The reclaimed trichlorethylene was obtained from the laboratory distillation of extraction solvent in the recovery of asphalt cement.

The mixes used were surplus of field samples that had been submitted to the Laboratory for testing during the previous construction season. The numbering (1 through 14) indicates the different mixes used, and the lettering indicates the different test samples from each mix.