REPORT OF COMMITTEE ON SOIL CALCIUM CHLORIDE ROADS

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The Committee on Soil Calcium Chloride Roads has divided its program of study into three phases.

1. The review of all available data and the preparation of a bibliography.

2. Laboratory studies through research and tests to evaluate the use of calcium chloride with various types of soils and to determine phenomena which will assist in planning field projects to determine the quantitative value of calcium chloride for stabilization.

3. The study of experimental field projects to more definitely evaluate the results of laboratory studies under actual field conditions.

The first phase of the work has been completed and a bulletin presenting a complete bibliography of available information, compiled by Dr. Cuthbert then of Princeton University, and published by the Highway Research Board in 1945 as Research Report 2-F. The bibliography has been a most important factor in the further work of the committee.

A study of the various reports and papers as called to the attention of the Committee by this bibliography and particularly those papers presented in the proceedings of the Highway Research Board during the past few years definitely showed the qualitative value of calcium chloride for stabilization of soils for roads and bases. It is, however, of importance to determine the quantitative value of calcium chloride in soils. Laboratory experiments have been conducted to establish the direction of the field research and eliminate unprofitable phases of the research. The most comprehensive laboratory research conducted by the Committee was a project conducted in the soils laboratory of the civil engineering department of the University of Maryland under the direction of Professor Morgan Johnson. Professor Johnson presented a report before the Research Board last year. Some further study has been carried on by Professor Johnson which will be included in the report of the committee but is not to be presented on this program.

A laboratory project was also carried on at Purdue University under the direction of Professor Woods and reported in the Proceedings of the Board, Vol. 26, by Mr. Yoder. This study was most extensive and presented results of wide interest. A further program of study as to the "Effect of Calcium Chloride on the Compactive Effort and Water Retention Characteristics of Soils" and a report was presented by Professor Yoder at the 27th Annual Meeting of the Board and is included in Vol. 27 of the Proceedings.

With this laboratory experience as a background the Committee believed there was ample justification for the construction of field projects this year and two such projects have been promoted--one in Virginia with the cooperation of two members of the Committee, Mr. Shreve Clark and Mr. Shelbourne and one in Alabama with the cooperation of Mr. Tribble, Construction Engineer for the State

Highway Department. These are cooperative projects between the Highway Research Board and the respective highway departments.

Mr. A. U. Theuer, formerly with the National Bureau of Standards and now Research Engineer for the Highway Research Board discusses the programs for these field studies in his paper which is included in this Bulletin.

The Committee has held one general meeting this year and several of the members have been able to visit the field projects in Virginia and Alabama and provide assistance in the work.

The Committee believes it would be extremely desirable if a series of such experiments could be conducted on a large scale among the states making use of granular stabilization. Such tests should be correlated and should cover as wide a range of soil types as possible. Accordingly, the Committee is planning for other field projects for the coming season. It is believed the results of these studies will provide data upon which a more rational approach to the design of stabilized roads may be made.

FIELD STUDIES TO DETERMINE THE VALUE OF CALCIUM CHLORIDE FOR COMPACTION OF SOILS

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The favorable results attained in the laboratory with the use of calcium chloride as an integral admixture in sand-clay base materials, has led the Soil Calcium Chloride Roads Stabilization Committee, to extend the scope of its work to full scale field investigations.

During the past summer the Committee initiated two cooperative projects and formulated plans for several more next year. Due to delays in getting the actual work underway, however, construction on only one of two projects has been completed. This is located in nearby Virginia. The second project, located in Alabama was started last month and is now in progress.

As stated by the Committee, the purpose of these field investigations is to study construction methods, durability, and performance, as well as those primary factors, density, moisture, compactive effort and strength. Each project following construction is to remain under observation for a minimum period of one year. Time will also be spent in a comparative study of methods for determining strength relationships.

I will give a very brief review of the Virginia project, and a few data just by way of indicating what is being undertaken.

Several possible locations for starting the first investigation were made available by the Virginia Department of Highways last August. From these, a 3½-mile reconstruction project located in the Coastal region was selected. The reconstruction called for a 10-inch stabilized sand-clay base and a two coat asphalt wearing surface. Material for the base was secured from a nearby pit and was placed in two 5-inch courses.

For purpose of the experiment, a 3000-foot section, subdivided into 1000-foot lengths was selected. For the first section a 2½-pound per sq. yd. treatment was used. The second or control section was untreated. The third section was given a 5 lb. per sq. yd. treatment.