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CONSOLIDATED MONTHLY REPORT
MAY 1973

This Consolidated Monthly Summary contains the technical information for May 1973. Because of the highly confidential nature of its contents, circulation is limited. Those receiving copies are requested to limit access to only those members within their organization who have a real need-to-know.

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June 1, 1973

MONTHLY REPORT FOR MAY 1973

CONSOLIDATED EDITION

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MONO-KOTE PRODUCT IMPROVEMENT (Project 2659)

The emphasis of this month's activity has not changed from last month. Characterization of Mono-Kote raw materials, vermiculite and gypsum, from different sources with the view of determining their properties relating to the shrink-crack problem is continuing. Effort has been made to relate compressive strength, flexural strength, and elasticity of ZOU mortars to shrink-crack. These show little relation to the problem when considered alone. However, the combined responses of flexural strength and elastic moduli as a function of cure time appear to offer some explanation for the cause of crack formation. Two unsatisfactory ZOU's, one from Gypsum, Ohio and other from Maryland, when made up into neat pastes and cured in a similar manner, undergo expansion, shrinkage, and expansion again. California and Iowa ZOU's, which are less brittle with relatively little change in flexural strength and elastic moduli, shrink or change little in dimensions with drying and give satisfactory performance.

No great differences were found in wet density and set times of mortars prepared with Maryland ZOU mixed with No. 3 Libby and Kearney vermiculite expanded at Trenton and Muirkirk. Vicat consistency for Libby ore expanded at Muirkirk was greater than for Trenton. No difference was found for Kearney ore expanded at either plant.

Comparison of attrition resistance for Libby and Kearney vermiculite exfoliated at Trenton and Muirkirk showed that Libby vermiculite is more resistant to attrition than Kearney. Exfoliation at Trenton causes less attrition than Muirkirk.

The characterization of ZOU's and vermiculites along with their interaction as related to shrink-crack will continue.

(Kraus, Kolbe, Legal)

DAVISON CRACKING CATALYST (Project 2419)

The objective is to determine if technology developed for sodium-silicofluoride sodium-silicate cements can be applied to improve the attrition resistance of Davison's cracking catalyst. Davison completed their physical and chemical testing of spray-dried samples submitted to them. Results indicate that attrition resistance has been improved; however, activity has been sharply reduced. This is probably due to residual sodium which is much higher than usual and also fluorine which normally is not present.