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CONSOLIDATED MONTHLY REPORT

JULY 1972

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W. R. GRACE & CO.

RESEARCH DIVISION

Washington Research Center Clarksville Maryland 21029

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MONTHLY REPORT FOR JULY 1972

CONSOLIDATED EDITION

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REFORMULATION AND EVALUATION OF MONO-KOTE (Project 2659)

The purpose of the current Mono-Kote program is threefold:

(1) To determine curing and aging behavior of MK-IV under controlled environmental conditions, with the purpose of devising a technique for predicting behavior in the field under varying weather conditions.

(2) To investigate the effect of set retarders on behavior and cure strength of Mono-Kote.

(3) To investigate the shrink-crack phenomena of Mono-Kote.

Item (1) is a continuing program. The data gathered this month confirm previous data that curing and aging behavior show that drying rate is inversely proportional to relative humidity, temperature and thickness, and directly proportional to air velocity. More detailed information which will be useful in field application is being obtained.

Preliminary testing on the effect of retarder concentration on Mono-Kote properties indicates that set time can be changed from the normal 3-1/2 hours to 10-3/4 hours by increasing the retarder content from 0.02% to 0.1%. This small change in retarder percentage appears to substantially change the characteristics of the Mono-Kote to give a punky, weaker-type product.

The geometric configuration of the steel support for Mono-Kote appears to have an effect on the shrink-crack problem. Right-angle changes in direction of the supporting structure induced the phenomena. Drying conditions also appear to be a factor but quantitative results are not available.

(Kraus, Legal)

MUFFLER CEMENT (Project 2264)

The objective of this project is to determine the usefulness of the sodium silicate-sodium silicofluoride vermiculite cements described in RES Report 71-66 in bonding a monolith catalyst support to a stainless-steel tube to be used in an automobile exhaust system. The objective is divided into three areas:

a. To find the best cement formula.
b. To develop a technique for applying the cement in the space between the monolith and the tube.
c. To devise a cyclic test procedure or procedures which would simulate the conditions that a unit is subjected to when attached to an automobile engine.