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**JOHNS-MANVILLE RESEARCH AND ENGINEERING CENTER**

Report No. 431-T-223

Date August 17, 1967

Title: JM INSULATING FIREBRICK - Variation of Thermal Conductivity of Production Samples

Requested by: H. R. Bennett (MSR-Z-101) Complete

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## SUMMARY

Samples of JM-23, JM-26, JM-28, and JM-3000 Brick were tested in a rapid heat meter apparatus at 900°F to assess the variability of the respective conductivities. The results of 45 tests are reported here.

Linear k versus density relations were determined by regression techniques to fit the data for JM-23 Brick, and for the JM-26, JM-28, and JM-3000 Brick as a group. It was found that density accounted for 62.8 per cent and for 88.5 per cent respectively of the variability of k. Equations for the two relations and the standard error, which characterizes the variability of the k after the effects of density have been removed, are included in the body of this report.

The k values predicted by these equations for 900°F mean temperature are:

| | JM-23 | JM-26 | JM-28 | JM-3000 |
|---|---|---|---|---|
| Nominal Density, pcf | 31 | 51 | 58 | 65 |
| k - Upper 95% limit* | 1.16 | 2.65 | 2.98 | 3.31 |
| = Predicted | 1.11 | 2.44 | 2.77 | 3.10 |
| - Lower 95% limit | 1.05 | 2.23 | 2.56 | 2.89 |
| Specification k at Nominal Density | 1.14 | 2.40 | 2.76 | 3.28 |
| Maximum Density of JM Finished Product Spec. - pcf | 33 | 54 | 60 | 68 |
| k at Maximum Density, Predicted from Equations | 1.20 | 2.58 | 2.86 | 3.24 |

*95 per cent confidence limits are based upon plus or minus two times the standard error.

DEFENDANT'S EXHIBIT OI-192

Contents: Summary, Discussion, and Appendix I (Tables 1 and 2).

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k
cc: (See reverse side).
Notebook 3410, pp. 83-139

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