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Research Center
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E. J. Kent, DH

Brochure IH-294A 3-61
Brochure IH-115A 9-59
Your letter of May 11, 1961

PLAINTIFF'S
EXHIBIT
K-1594

The following revisions or corrections should be considered when the subject brochures are rewritten:

Reversible Thermal Expansion

The reversible thermal expansion for JM-26, JM-28, and JM-3000 IFB should be changed from 0.5 - 0.6 to 0.65 - 0.75 per cent at 2000F.

The values shown (0.5 - 0.6 per cent at 2000F) for the new JM-20 and new JM-23 IFB are satisfactory. Values determined recently on one specimen each of new JM-20 and new JM-23 IFB were 0.54 and 0.53 per cent, respectively, at 2000F and were identical to values determined on B & W K-20 and K-23 IFB.

JM-28 IFB. Linear Shrinkage

The brochures are incorrect in showing 1.0 per cent linear shrinkage at 2800F. JM-28 IFB are tested at 2750F.

The average linear shrinkage of the last three annual samples of JM-28 IFB was 1.4 per cent.

Thermal Conductivity

The value for thermal conductivity of JM-3000 IFB at 1000F, mean, in IH-294A is not the same as that in IH-115A. The most recent value is 3.30 as shown in IH-115A.

The thermal conductivity of JM-20 and JM-23 IFB are included in Research Report No. 431-7-169, dated May 5, 1961.

JM-23 and JM-20 IFB

The linear shrinkage of JM-23 IFB should be 0.1 per cent.

The strength and density of JM-23 and JM-20 IFB in IH-294A are consistent with the current Finished Product Specifications. Our data shows that the density of JM-23 should be 31 pcf; the density of JM-20 should be 29 pcf, and the modulus of rupture of JM-23 should be 130 psi. However, Zalcnople personnel have much more data on strength and density.

DEFENDANT'S
EXHIBIT

01-165

July 31, 1961 0

Lightweight Aggregates

The density of both JM-2000 and new JM-2400 L. W. Aggregates should be revised. Brochure IX-2744 is not correct in showing a lower density for new JM-2400 aggregate than that of JM-2000 aggregate. Our limited amount of data indicates that 32 pcf for JM-2000 and 38 pcf for new JM-2400 aggregate may be satisfactory. The actual densities of these materials will overlap because of the small difference in density of the JM-20 and JM-23 IFS which are crushed for aggregate and because of normal variations in particle size distribution. However, Zelenople personnel probably have more data on this property.

Castables

The highest working temperatures for Standard Firecrete and No. 20 Firecrete shown in IX-115A are not consistent with the values shown in RC-28A 6-99. The maximum service temperature for Standard Firecrete is 2500F.

We are having difficulty in using the new aggregate in JM-20 Firecrete. Cracks on the surface develop from 1200F to 2000F and open appreciably above 2000F. The final composition should be suitable for 2200F as shown in RC-28A, but it may be necessary to use an uneconomical particle size distribution to achieve this objective.

S. E. Woolley

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