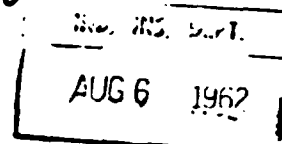


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note 2/2/62

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Division Headquarters
August 3, 1962

PLAINTIFF'S
EXHIBIT
K-1631

E. F. Briggs
W. M. MacAlpine - Research Contr.

Refractory & Insulating Refractory Products
Research Review 7/13/62
Action Sheet #11 - Dated 7/16/62

It has been request that an evaluation be made of the 29 new product suggestions submitted at the Research Review of 7/13/62 together with specific recommendations.

(1) It is recommended that a Research objective type SPR be issued to explore the possibilities of developing a light weight gunning and castable mix with the following approximate properties:

Temperature limit - 2000 F minimum.
Weight after firing - 15-30 lbs. per cubic foot.
Compressive strength - 5% at 20 psi at all temperatures.
Shrinkage - .5% at 2000 F
Conductivity - 1.0 at 1000 F mean.
Approximate selling price - \$200.00 per ton maximum.

Such a product would have applications in high temperature duct linings, heat treating furnaces, hot blast stoves, furnace doors, controlled cooling furnaces, etc. The estimated national sales potential in these applications would be in excess of \$1,000,000 per year and we believe we could obtain at least 15% of this potential within the first year after development. To our knowledge there is no existing material on the market having properties approaching those listed above which would place us in the position of being first in the field with this commodity. Materials currently being used and which we would expect to displace with this commodity would be; competitive insulating fire brick, competitive refractory castables and gunning mixes, competitive block insulations, and heavy firebrick.

(2) It is recommended that a Research objective type SPR be issued to explore the possibilities of developing Insulating Fire Brick in all temperature ranges with traces or no reducible oxides. The Norton Company, Carborundum Company, A. P. Green Company, and Glasrock Company are currently producing such materials and selling them at unusually high prices. One of the known usages for products of this type is for refractory muffles in the bright annealing of stainless steel. This single market is estimated at being in the order of \$300,000 per year. As part of the exploration in this area, consideration might be given to the development of high purity kaolin clays as obtained from domestic sources as well as from overseas.

DEFENDANT'S
EXHIBIT

OE-202

(3) An SPR has been issued to explore the possibility of developing an air setting cement for bonding brick in molten aluminum service.

(4) An SPR has been issued to develop an Insulating Fire Brick to meet Military Specification MIL-B-16008 B.

(5) It is recommended that a study be initiated in the following fields to determine present practices, problems, and market potential prior to the issuance of formal SPR's:

a.- Hot Metal Mixers - A bonding cement superior to those currently in common usage is required in this field.

b.- Iron Melting Cupolas - A superior and inexpensive material is needed for patching the linings of the melting zone where the refractories are consumed rapidly.

c.- Ladle Linings - Development of a superior refractory for lining ferrous and non-ferrous ladles to replace the clays in common usage merits study.

d.- Castable Refractory For Lining Hot Tops - Some mills are using castable refractories in large tonnages for use as the lining in their hot tops. Along with our development of consumable hot tops, the use of a castable refractory should be investigated.

e.- Cast Furnace Linings - Large tonnages of gun type refractories are currently being used for patching blast furnace linings. This field should be thoroughly explored with the aim of developing a superior product for the service.

G. E. Grimeshaw
S. E. Woolley

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