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PLAINTIFF'S EXHIBIT K-1534

Pittsburgh District
April 15, 1968

J. A. Campbell - DEQ

BLAST FURNACE STOVES
A. I. M. E. MEETING

I have developed some information at Koppers which I hasten to pass on.

Koppers had a representative at the A. I. M. E. meeting in Atlantic City who also obtained a copy of the Andersonpaper, and they have passed the paper on to their refractory engineers for comment. Subsequently, I have been called in by these refractory engineers and we have spent a good part of the day discussing matters.

Generally the situation at the moment is something like this with Koppers. To date we have never lost an order for insulation for a single blast furnace stove job at Koppers. They have used Superex and Sil-O-Cel brick exclusively for all their stoves for the past 30 or more years and I am familiar with their jobs for approximately 20 of these years, having called on them about that length of time. Likewise, Koppers has never encountered ruptured shell plates on any of their jobs although they have perhaps built stoves for higher temperature service than any concern in the country. They are aware, however, of the problems others have run into in the way of shell failures and it may be simply good fortune that they have not had similar difficulties.

About 14 years ago they relined a stove for Bethlehem Steel Lackawanna Works and this lining was designed for the highest stove temperatures that would ever be encountered — 3000 F dome temperature. I doubt that this stove ever reached this extremely high temperature for more than a few cycles but the point remains that it is still in service with the same lining after these 14 years and there has been no ruptured shell plates. In addition, this lining was installed in an ancient shell (built in about 1902) with ship lap plates rather than welded construction. A feature of the insulation design, however, was that #50 Cement was first applied to the shell (thickness varying from about 1-1/2" to 1/2") to form a perfectly cylindrical surface before application of the Superex.

Koppers built another series of four stoves down in Chile about 5 years ago again lined with Superex and Sil-O-Cel brick and these likewise operate at high temperatures. Dome temperatures are currently running between 2600 and 2780 F and line temperatures are running 2200 F. Once again there have been no ruptured shell plates or buckled bed plates. These were brand new shells, however, of welded construction and in designing the foundations for earthquake conditions, the bed plate and anchors were unusually massive. No #50 Cement was used on this job.

DEFENDANT'S EXHIBIT OE-105

BLAST FURNACE STOVES
A. I. M. E. MEETING

Instead Koppers applied a lubricant of graphite paste to the shell plates.

Koppers indicates to me that the "new improved mineral wool product" referred to in the Anderson paper is the Harbison Walker promotion I had mentioned earlier. Apparently it consists of a standard mineral wool product (Harbison Walker is purchasing it from Baldwin Ehret Hill) with a relatively thin facing somewhat similar to the Kager Picher M T B block. To me it sounds as though the product would be about the same as our H.T. Banroc with a facing. If this is the case, I can not conceive of it being acceptable for stove insulation. In my opinion H. T. Banroc is a perfectly rotten product for temperatures above 1200 F and I can picture it failing miserably in a stove unless of course it is employed as a thin back up for Superex along the same lines as our composite block concept.

As you know, I am struggling for a $90,000 order from Koppers for four large stoves at Burns Harbor and I would appreciate it if you would send me (rush rush) any Research data you can accumulate on the strength and resiliency of any of the so called high temperature mineral wool products (our H. T. Banroc included) after exposure to temperature. Koppers has been given a copy of the 1961 Ceramic Bulletin report prepared by U. S. Steel which shows the enormous fall off in strength of the mineral wool block after exposure to temperature but anything I can do to augment this information will be appreciated. While I doubt that Koppers will seriously consider any mineral wool block for the Burns Harbor job, any special service I can offer at this time will react to my advantage in the placement of this job. My competition for the job is the IV-20 block as you know but so far this concern does not seem to be offering any concrete or new ideas.

Two final thoughts.
(1) I think we should increase the published temp. limit of Superex to 2000 F. The U. S. Steel report classes it as being suitable for 2000 F but we still show a limit of 1900 F. This places us at a disadvantage when competing with IV-20, Careytemp 2000 and Kaylo 2000.

(2) When you get around to sending the carton of Composite block to U. S. Steel Research some one should come to Pittsburgh to offer some guidance to them in establishing a test procedure. We certainly don't want them to conduct a test the same way they test standard block insulations by recording properties after exposure to soaking heats. A loaded hot face panel test would seem to me to be in order. Should you decide to make the trip you might also wish to discuss matters in detail with some Koppers people and exchange some information.

G. E. Grimshaw