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PLAINTIFF'S EXHIBIT K-412

EXHIBIT 3

Mr. J. H. Thomas, Toledo

R. F. Shannon, Granville

October 23, 1967

Mr. R. J. McEvoy, Granville

KAYLO PRODUCT DEVELOPMENT

Pi Pfeifer sent me word last week you wanted to talk about the 'replacement of asbestos' program. I attempted to contact you several times last week, plus on Monday of this week, without success. As you know, I was in Berlin all of last week working on in-plant process problems.

To follow-up on your request to move promptly on the evaluation of epoxy coated Fiberglas yarns, Pi Pfeifer asked Bob Wong for help in getting for us a supply of such yarns for our evaluation in Kaylo. As soon as the Chemistry Lab produces the yarns for us, we will evaluate in Kaylo and send you the results.

The epoxy coated yarns reported recently as being used to good advantage in cement are in reality 12 end rovings coated with epoxy resin to form miniature 'fishing' rods. They are quite stiff, about the size of tooth picks and about 1-1/2 to 3 inches long. Mr. McEvoy agreed to my accompanying Mr. Potts, of FIM Division in New York, to Rensselaer Polytechnic Institute on Wednesday, October 25, to discuss the concept with Professor Klink, the inventor.

The program directed toward replacing asbestos in Kaylo is complicated by (1) the huge investment we have in the SID cylinder pan pouring process at Berlin, (2) the need for additional plant capacity and (3) problems which must be answered as to type of process to use in the new facility before expansion is undertaken. Questions to be answered include: (1) do we expand Berlin (901 now in Toledo) or do we build a new plant and (2) if we build a new plant, do we install the SID cylinder pan pouring process or another process yet to be determined?

I cannot say at the moment with any assurance we will be successful in developing another type of reinforcement, preferably glass, which can be adapted to the SID cylinder pan pouring process. The best odds I can project at the moment are 50/50. In any case, the problem won't be solved in a week or month. In fact, we will be lucky to carry the program to a plant trial stage after a year's effort.

In view of the fact the probability of finding another reinforcement, which can be used in our present process, is at the best 50/50, do we also direct some of our effort toward a new process and if so, what process? At the moment there are no high temperature insulations on the market which do not contain at least some asbestos. To the best of our knowledge, the only asbestos free product on the market in recent years was OCF's Multitemp. Do we attempt to improve Multitemp? My answer would be no. The Multitemp concept of post impregnating a prebonded product wasill conceived. It does not lend itself to adequate profit margins.

Instead, if the decision is to develop a product based on glass fibers, I would recommend we work on an inorganic bonded glass fiber composite, which can be produced in a one-step operation, possibly via a modified version of the filter press process.

We must not forget the bonded aggregate type product. Careytemp is a bonded perlite reinforced with glass and asbestos fibers. If Philip Carey could solve their breakage problem, Careytemp would become the best high temperature product on the market. I believe an OCF version of such a product containing 100 percent glass reinforcement would have a high probability of success. As you know, this is the program which Marketing canceled on us year after year in the past.

Now that I have given you a brief insight as to my thoughts as to where we go from here, I would like to suggest for your consideration the following program. Initiate a hard hitting intensive search for a fiber substitute for asbestos. The effort should be directed mainly toward glass fibers. We should not, however, close our eyes to other ceramic fibers, which become commercially available in the meantime. We should also initiate an exploratory program directed toward checking the feasibility of developing a glass reinforced bonded aggregate or an inorganic bonded high temperature glass fiber product (Multitemp via a different process).

Your first thoughts to the above may be we are spreading our activity too much. We should instead decide on one program. Under ordinary circumstances I would agree with the idea of concentrating on one approach. However, we must recognize the fact that if we direct all our efforts toward finding a substitute for asbestos and if not successful, we could find ourselves with two plants (Berlin and the new one to be built) equipped with a process requiring asbestos. On the other hand, if the decision is not to continue looking for a substitute for asbestos, but start to develop a bonded aggregate or high temperature glass fiber (a la Multitemp) product, we are giving a death sentence to Berlin, the SID cylinder process and the huge investment in the pan pouring process. Also, we will face an outlay of 6 to 10 million just to revamp Berlin to the new process.

What are the chances of technical success? I would guesstimate 50/50 of replacing asbestos in the pan pouring process, 90 percent for a glass reinforced bonded aggregate product and about 80 percent for a one-step process Multitemp type product having a 30+ percent gross margin.

What really bothers me is timing. To carry out any type of program we will need manpower and facilities. At the moment I am down to two technicians and about 1/2 the space allocated to Kaylo prior to 1964, when all research on Kaylo was terminated at Granville. Two of our three available autoclaves are in storage for lack of space.

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At the moment we are attempting to zero in on the improved stress corrosion formulations to be poured after November 15 when a supply of 2399 glass becomes available and provide as much technical service to Berlin as time and manpower will permit. Our manpower situation is becoming critical. The recruiting program for new people is batting zero. As for additional space, we are working with Fred Swank and Ike Myers. A 901 will probably be required to provide the space we need.

If you have the time available Thursday when you come to Granville, I would like to have the opportunity of discussing this program with you.

R. F. Shannon

RFS/ris

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