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from The Department of the Navy RE Proposed Insulating
Materials for Naval Vessels

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DEPARTMENT OF THE NAVY
NAVAL SHIP ENGINEERING CENTER, PHILADELPHIA DIVISION
PHILADELPHIA, PA. 19112

IN REPLY REFER TO
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9390 (FA-287)
Ser 752

5 MAY 1969

Owens-Corning Fiber Glass Corporation
Toledo, Ohio 43601

Gentlemen:

Re: Proposed Insulating Materials for Naval Vessels

The serious hazards of asbestos have recently received widespread publicity and have generated a high level of interest concerning its use by the U. S. Navy as an insulating material. There are many varied uses of asbestos in the Navy but the most disturbing, from a health hazards viewpoint, is that for piping and boiler insulation and lagging. The chief hazard exists wherever there is a possibility of dust evolution during operations such as fabrication, installation and especially during rip-out.

In order to minimize the hazards associated with the use of asbestos and therefore reduce the possibility of deleterious effects to the workers, a comprehensive study has been initiated by the Naval Ship Engineering Center, Hyattsville, Md., to investigate the feasibility of substituting alternate materials for asbestos used as lagging, piping and boiler insulation. High temperature insulation, as used by the Navy, must be composed mainly of inorganic materials in order to endure temperatures above 200 F for extended periods. In addition, an acceptable insulation must exhibit the following characteristics:

1. Low heat conductivity.
2. Non-combustibility.
3. Lightweight.
4. Capability of easy molding and application.
5. Moisture repellency.
6. Non-corrosive, insoluble and chemically inert.
7. Composition, structure and characteristics must remain unchanged by temperature at which it is to be used.

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9390(PA-287)
Ser 752

8. Must be vermin proof.
9. The material and application costs should be economical.
10. The ideal insulation should be nontoxic and non-injurious to personnel during fabrication, installation, use, or rip-out.
11. Once installed, it should not cluster, become lumpy, disintegrate or build up in masses from vibration.

The Philadelphia Division of the Naval Ship Engineering Center has been assigned tasks to conduct a survey of suppliers of insulation to the Navy, to secure technical data literature, and to investigate medical research findings, safety manuals, and data on research being pursued by private industry intended to develop new or improved materials which may be suitable for replacements for asbestos for piping, felts and lagging. The cooperation and support of industry for this study is earnestly solicited by this activity since the health of the worker is the concern of management, labor and the government. Accordingly, the Navy is desirous of obtaining information on the following:

- a. Are alternate non-asbestos containing materials available which may be used as thermal insulation pipe covering? The insulation must offer protection up to 750 F and be manufactured in cylindrical sections up to 3 feet long, and split in half lengthwise.
- b. Are there any single layer or combination layered non-asbestos molded materials available which may be used as thermal insulation pipe covering for protection from 750 to 1200 F?
- c. What materials may be substituted for asbestos insulating felt (plain or water repellent) for use on valves or other irregular surfaces and which are suitable for a range from cold water temperature to 900 F?
- d. What non-asbestos containing cloth materials may be used as a lagging jacket over thermal insulation, or as a wrapping on engine exhaust pipes, or for piping or tubing, or on the inner and outer surfaces of removable covers and on flanges and valves from -5 F to 1050 F?
- e. What heat-resistant bonding materials may be substituted for asbestos insulation finishing cement over block insulation and irregular surfaces where powdering during rip-out has been a problem?

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