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REVIEW OF PATENTS AND OTHER LITERATURE

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Copies of Moody's for PPG, Keene (Baldwin-Ehret-Hill, Baldwin-Hill), and Fibreboard are enclosed to show the history of these companies.

Also enclosed are lists of patents for Pittsburgh Corning, Keene, Fibreboard, and Raybestos-Manhattan, and copies of the "best" patents for each company. The lists and the patents should be self-explanatory. Each patent is marked to indicate the important passages. However, I would like to particularly point out the following:

Pittsburgh Corning -- All of the patent numbers supplied to me by your office, with the possible exception of 2,620,513, were for products other than Unibestos. The 2,620,513 patent was discussed in the report on Robert Anderson.

Keene -- The 2,633,433 patent described a fire-resistant insulating sheet material useful aboard ships (col. 5, lines 36-40). Although glass wool, mineral wool, or asbestos could have been used, mineral wool was preferred. The patent states:

Furthermore, the product is characterized by its ease of handling and may be utilized with a minimum of dusting and breakage and, therefore, with practically no industrial health hazard. The product may, therefore, be used in any application where such properties are desirable. (col. 5, lines 25-30).

Fibreboard -- The 3,736,163 patent is not useful for my testimony, but does mention the hazards of asbestos (col. 1, lines 18-27 and col. 4, lines 34-39). The patent application was filed Feb. 2, 1971.

Other Patents and References (copies enclosed)

2,247,355 -- Claimed a ship panel similar to Marinite but containing wood fibers instead of asbestos.

Saborsky, A.D., "Glass Wool Heat Insulation in Europe," J. Amer. Ceram. Soc., 6:674-684 (Apr. 1923). -- Described the advantages of glass wool insulation and its uses aboard ships.

"Glass Silk as a Heat Insulator," The Engineer, 152:150 (Aug. 7, 1931). -- Glass silk insulation for boilers on ships and steam pipes.

"Fibrous Glass Insulation," Marine Engineering and Shipping Review, 42:653 (Dec. 1937). -- Fiberglas useful for pipe covering and in ships, etc.

Slayter, G. "A New Marine Insulating Material," Marine Engineering and Shipping Review, 45:60-65 (Feb. 1940). -- Uses of Fiberglas insulation aboard ships, including high temperature pipe covering (p. 64).

"Fiberglas on Shipboard Its Uses in Merchant and Naval Vessels," The Nautical Gazette, 131:14-17 (Oct. 1941). -- Uses of glass fiber insulation aboard ships. Described weight advantage of Fiberglas pipe insulation lagging (p. 15).

Specifications for Construction of a Twin Screw Passenger and Cargo Vessel, United States Maritime Commission, Jan. 1945.

The insulating materials for temperatures below 600°F. shall be 85% magnesia, fibrous asbestos, rock wool or fibrous glass... (p. 75-1).

This implies an equivalency between these types of insulations.

"Glass Fibers for Insulation," Heating and Ventilating, 42:59-61 (Mar. 1945). -- Fiberglas as molded pipe coverings (p. 59).

Specifications for Construction of a Single Cargo Vessel, United States Department of Commerce Maritime Administration, Nov. 1950. -- Insulation for piping and machinery included 85% magnesia, amosite asbestos, fibrous glass pipe insulation, fibrous glass sheet insulation, calcium silicate, and diatomaceous silica (pp. 75-2 and 75-3).

Mansergh, R.A., "Thermal Insulation Materials -- I," Power and Works Engineering, 51:257-260 (July 1956). -- Described the various types of insulation available, including fibrous ones.

Roberts, J.C.H., "Reducing Costs of Thermal Insulation of Marine Machinery & Piping Systems," Insulation, 8:108-111, 117 (May 1964). -- Advantages of glass cloth over asbestos cloth to wrap pipe insulation.

Bewsher, M.R., "Cost-Effectiveness Evaluation of Thermal Insulation in Naval Vessels," American Society of Mechanical Engineers Paper 67-WA/Mgt-10, Nov. 1967. -- This study, I believe, was undertaken for the British Navy. It gives cost comparisons between thermal insulations for marine use.