The Ruberoid Co.
500 Fifth Avenue
NEW YORK

PLAINTIFF'S EXHIBIT
GF-705

April 27, 1943.

Mr. Arthur C. Rohn, Chief Engineer
United States Maritime Commission
Room 7286 - Department of Commerce Bldg.
14th & Constitution Avenue
Washington, D. C.

GENERAL FILES
DATE 7/13/43.
DOR

Dear Mr. Rohn:

Following my conversation with Mr. Kauffman on Friday, April 23rd, we desire to present to you Imperial Pipe Covering for your approval as an insulation material on ships being built under your jurisdiction.

Imperial is an asbestos laminated insulation that has been in use for several decades and has proven its value as an efficient, durable product through the increased demand for the material over a period of years. It is particularly adaptable for ship work because of its permanent construction that permits it to remain stable and in its original form regardless of vibration. It withstands the action of moisture without disintegration.

We have been supplying a number of shipyards with 85% Magnesia and High Temperature insulation during the period of this extensive program of ship constructionbut we are finding a continual increase in demand for these molded insulations by both the Navy and Maritime Commission to the extent that it is increasingly difficult to keep up with the schedules. From conversations with the War Production Board we understand that the entire Magnesia Industry is in the same position and therefore we believe it advisable to give consideration to an asbestos laminated form of insulation such as Imperial so that it could be listed as one of your approved products, thus increasing the flexibility of the manufacturers in supplying the shipyards with material as it is demanded.

Because 85% Magnesia is a molded product we are finding that we are able to take care of some of the pipe sizes required fairly promptly but the more popular sizes which seem to be common to all ships have a demand that far exceeds the mold capacity. This therefore entails delay in these particular sizes and until they are finished a ship cannot be completed.

Asbestos lamination insulation is not made on a mold and therefore permits all sizes to be made with equal speed.

We have shipped to the American Bridge Co., who are building tank landing barges for the Navy, considerable quantities of Imperial Insulation which they are applying successfully. It is our belief that they will standardize on this type of product. Furthermore the Federal Government has acknowledged the value of this material for temperatures up to 500° by issuing in January of 1943, their leaflet specification HH-I-561 which provides under Type 2 the specifications for "Indented Asbestos Paper Insulation". The efficiency of this material is equal to 85% Magnesia as indicated on the chart which is attached. Other data on the characteristics of this material is shown on the sales data sheet which is also attached.

Asbestos laminated insulation is made by practically all of the large Magnesia manufacturers in the industry and therefore the approval of the product will provide a number of sources of manufacturers.

We offer this material, samples of which are being sent to you under separate cover, primarily as a means of maintaining the shipbuilding schedule that has been established for this year as we can see the increasing pressure that is being placed upon us as a manufacturer is going to cause delays that we will be unable to cope with so long as the specification is limited to 85% Magnesia.

Yours very truly,
The RUBEROID Co.

J.M. Hill
Mgr. Insulation Div.

JMH:LK

Density:

The average density of all specimen tested was 19.5 lbs. per cubic foot.

Efficiency:

Tested by the guarded hot plate method provides the following "K" factors:

Mean Temperature	Btu. per hr., per sq.ft., per inch thickness, per degree F. temp. diff.
100 deg. F.	0.437
200 deg. F.	0.478
300 deg. F.	0.519
400 deg. F.	0.570

Suggested form of Specification:

The pipe covering and block shall be made of an assembly of layers of asbestos felts secured together by adhesion. There shall be not less than 10 layers per inch of thickness. The layers shall each consist of one sheet of asbestos felt formed to provide air spaces at intervals over the entire surface, backed by a flat sheet of asbestos and adhered together, confining the air spaces. Each sheet shall contain not less than 95% asbestos fibre and shall caliper not less than .015" thick. The pipe covering shall have two flat sheets as inner layers and finished with two flat sheets on the outer surface. The total laminations of both indented and flat asbestos felt shall not be less than 24.

Pipe covering when used on interior work shall be furnished with a canvas jacket having a weight of not less than 4.5 square yards per pound. When pipe covering is used in underground trenches or exposed to the outside elements, it shall have a water-resistant jacket consisting of asphalt saturated felt not less than 45 lbs. per 108 sq.ft. The jacket shall be of sufficient length to fit the circumference of the pipe covering and to provide a lap over the longitudinal seam of not less than 4". The butt seams shall be protected with collars of the same material extending 2" on either side of the seam. The laps and collars shall be cemented with asphalt lap cement. (Alternate specification for roofing jacket can be 30 lbs. per 108 sq.ft. asphalt saturated asbestos felt).

Typical Jobs:

Quartermaster's Depot, Philadelphia, Pa.
U.S. Receiving Barracks No 2, Philadelphia Navy Yard
Navy Munitions Building, Washington, D. C.
U. S. Navy Yard, Brooklyn, N. Y.
Fort Belvoir Cantonement, Fort Belvoir, Va.
Fort Eustis, Va.
Armory, Annapolis, Md.
Fort Mead, Maryland
Glenn Martin Aeroplane Factory, Baltimore, Md.
Curtiss-Wright Airport, Robertson, Mo.
Oklahoma City Air Base, Oklahoma City, Okla.
Shell Oil Company, Wood River, Ill.
Socony Vacuum Oil Co., Buffalo, New York
Norfolk & Western Railway, Roanoke, Va.

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Insulation Division
NEW YORK, N. Y.

The RUBEROID Co.

July 14, 1941
Cancelling issue dated Feb. 3, 1941

IMPERIAL PIPE COVERING, SHEETS & BLOCKS

This insulation, developed over twenty years ago, has been used by railroads, public utilities, oil refineries and general industrial concerns with complete satisfaction. Its appeal to the user is due to a combination of features seldom found in other types of pipe covering. It is an all-asbestos product, laminated not molded. It, therefore, resists abuse, has no damage from shipping, handles better during application, has excellent reclamation value and is designed to resist the outside elements.

From the description given herewith, the physical characteristics can be seen and comparisons made with other types in the same price class.

Construction:

Pure asbestos fibre felts are processed to provide indentations without fracturing the felt. This process also provides sufficient strength and rigidity to these indentations so that they will hold their shape in the construction of the pipe covering or block, giving definite confined air spaces. There are 700 indentations per square foot of surface. This felt is then run in conjunction with a pure asbestos flat sheet in alternate layers, providing 1400 confined air spaces per square foot of surface per layer. There are 10 such layers per inch thickness. In 1" thickness, therefore, there are 14,000 confined air spaces per square foot of surface. The inner and outer layers of this pipe covering are finished off with convolutions of flat felts; and as an outer jacket canvas 4-1/2 yards per pound is used for the outside, or for special underground conditions, a waterproof jacket is furnished in lieu of the canvas.

Abrasion:

Tested in a To-tap machine, giving specimen a thorough shaking for twenty minutes, the loss in weight averaged 0.35%. The apparent losses recorded were chiefly at the corners, which were observed to be slightly rounded.

Tensile Strength - Modulus of Rupture:

1" thickness - 72.9 lbs. per sq. in.
1-1/2" " - 85.6 lbs. per sq. in.

Effect of Water:

Specimen was immersed in water for eighteen hours. Average absorption was 92.1% of its original weight. After air drying for twenty-four hours specimen had original appearance and efficiency. Loss in weight due to water averaged 1.9%. At no time while immersed in water or after removal did Imperial separate at the plies.

Effects of Heat:

At temperatures to 400 degree F., no noticeable effects were observed. At 500 degree F., while no disintegration took place, Imperial softened due to a slight weakening at the plies. Original stiffness was affected, the insulation becoming somewhat flexible. At 600 degree F., insulation commenced to char and a slight smoking was noticed. At no time at any of these temperatures was there any shrinkage.

COMPARISON OF SPECIFIC CONDUCTIVITY "K" FOR VARIOUS INSULATING MATERIALS by ARMOUR RESEARCH FOUNDATION 1942

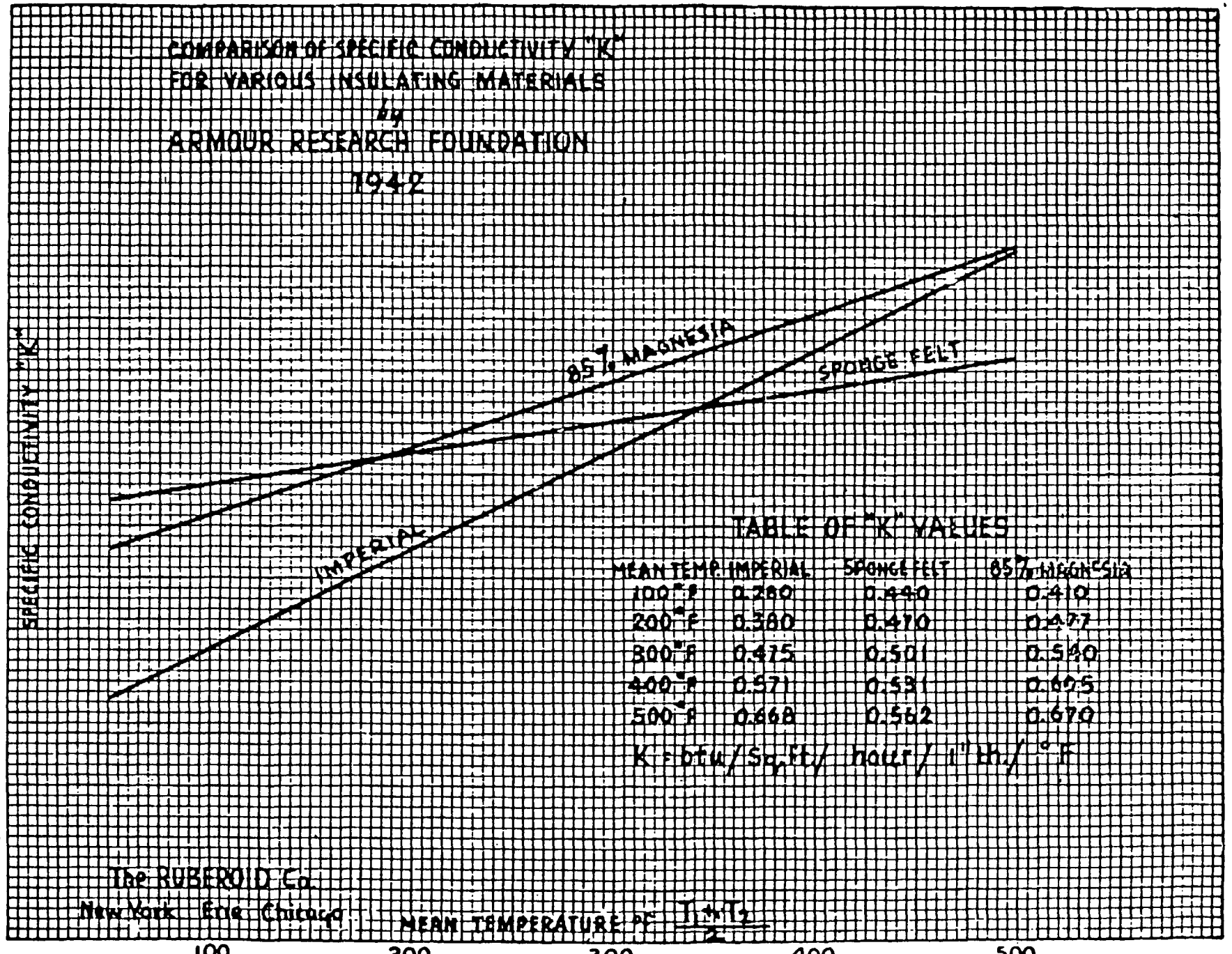

TABLE OF "K" VALUES

MEAN TEMP.	IMPERIAL	SPONGE FELT	85% MAGNESIA
100° F	0.280	0.440	0.410
200° F	0.380	0.470	0.477
300° F	0.475	0.501	0.540
400° F	0.571	0.531	0.605
500° F	0.668	0.562	0.670

K = btu / Sq. Ft. / hour / 1" Th. / °F

The RUBEROID Co.
New York Erie Chicago

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UNITED STATES MARITIME COMMISSION

MAIL AND FILES SECTION

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File No. 506-1-1-2

PART SIX

FROM March 16, 1943 TO September 30, 1943

SUBJECT

Ship Construction-

INSULATING MATERIALS

PAPERS MUST NOT BE REMOVED FROM THIS FOLDER EXCEPT BY MAIL AND FILE SECTION

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