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JOHNS-MANVILLE JM PRODUCTS

PLAINTIFF'S EXHIBIT K-1712

Foreword . . . .

For over three-quarters of a century, Johns-Manville has pioneered in the development of products designed to eliminate industrial waste, reduce maintenance expense and provide permanent, fireproof building materials for the protection of costly investments.

The more important of these products are described in this catalog and will be found as listed on the following page. Further details, and the technical assistance of our engineers, are available at each of the offices listed on the back cover.

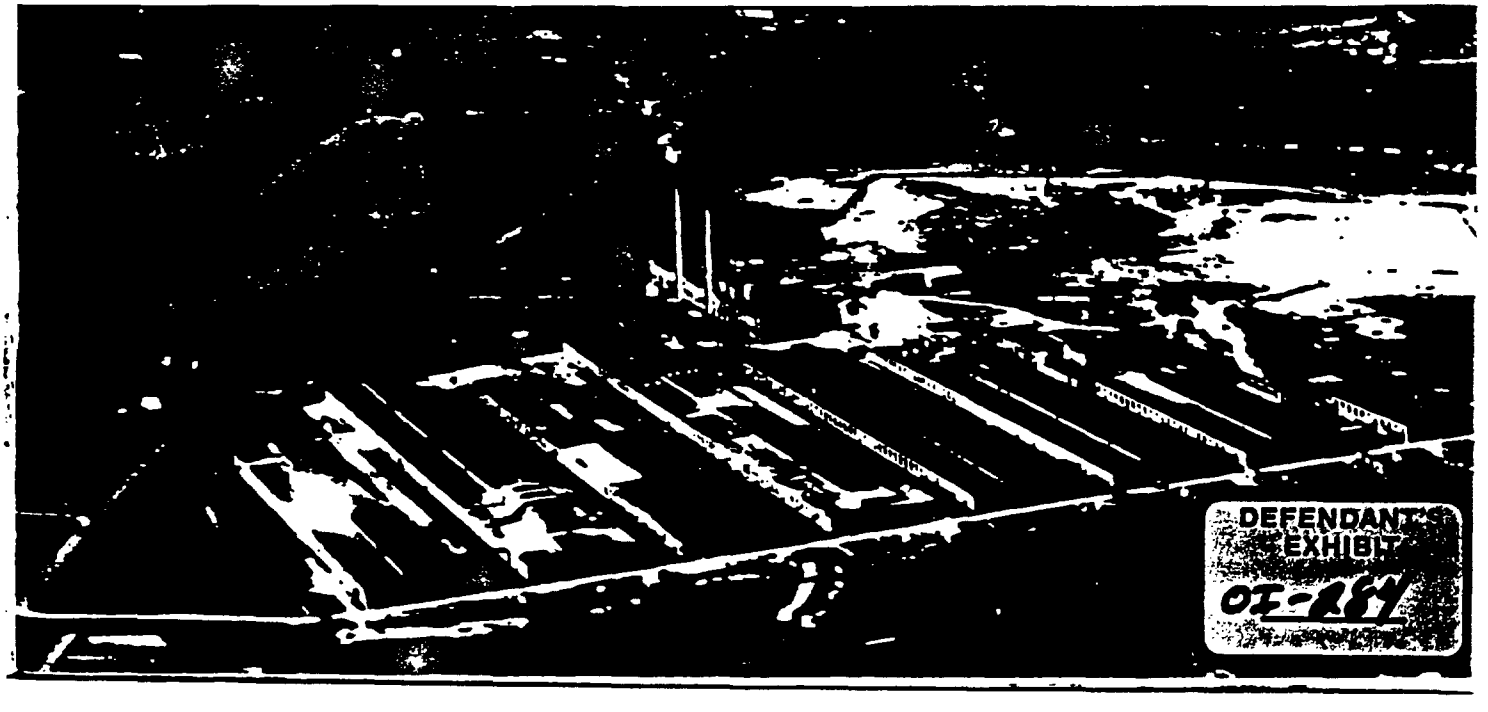
Johns-Manville

EXECUTIVE OFFICES • 22 East 40th Street, New York, N. Y.

For Complete List of Offices, see Back Cover

AN AIR VIEW OF THE JOHNS-MANVILLE FACTORY AT MANVILLE, N. J.

Here the J-M Research Laboratories carry on centralized research activities for this and ten other J-M manufacturing plants in the United States, Canada and Europe



JOHNS-MANVILLE
INDUSTRIAL PRODUCTS

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JM PRODUCTS

Johns-Manville
INSULATING MATERIALS
for Every Industrial Need

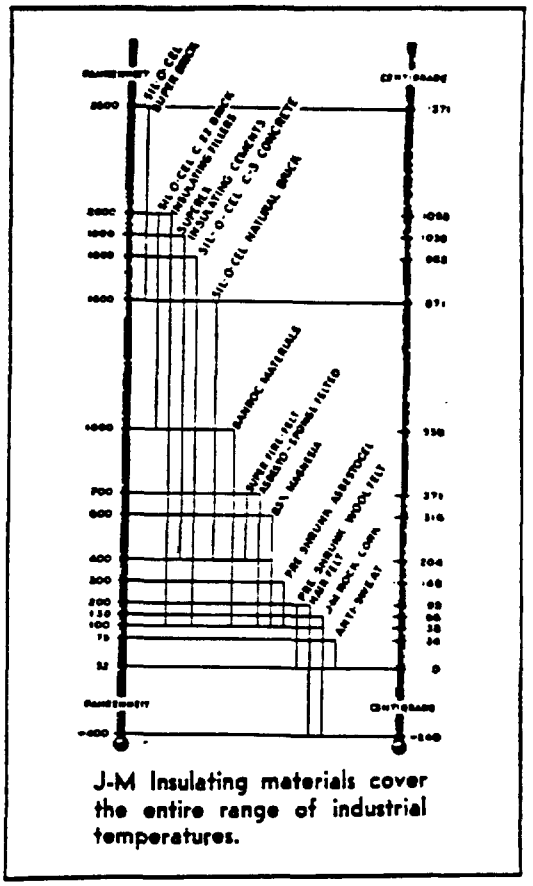
The science of industrial insulation may truly be said to have had its inception in a modest factory, built in 1858, which was destined to be the forerunner to the present JOHNS-MANVILLE organization.

There our earliest asbestos insulations were made, crude products in cement form which were sold, with considerable difficulty, to the more progressive industrial plants of the day for covering boilers and steam pipes. That was twenty years before Edison built the first electric light plant, and long before industry became generally concerned with the problem of fuel conservation and with the more efficient utilization of heat.

From that modest beginning the science of insulation has developed until now it is conservatively estimated that JOHNS-MANVILLE Insulating Materials save American Industry over $250,000,000 annually through lower fuel costs.

Today, an uninsulated boiler drum or steam pipe is almost unheard of. And wherever heat or refrigeration is used, whether in a power plant, a cold storage warehouse, a steel mill, an oil refinery or a glass plant, insulation is generally recognized as an essential to economical operation.

Insulation is, in fact, often called upon to do even more than save fuel. For example, many modern industrial processes based on reactions which take place within narrow temperature ranges could not be carried on without the close control made possible by insulation. This condition applies especially to petroleum refining, the manufacture of many chemicals, and to the heat treatment of certain steel products.



J-M Insulating materials cover the entire range of industrial temperatures.



Ceramic Section of J-M Insulation Research Laboratories

Here, at Manville, N. J., all types of high temperature insulation materials are tested under actual service conditions.

Many Types of Insulation Needed to Meet Varied Demands of Industry

No one or two types of material can be expected to serve under the wide variety of conditions insulation is called upon to meet today. For example, the temperature may be far below zero or above 3000° F. The surface to be insulated may be a pipe, a tank, or a furnace floor, wall, roof or door. The surface may be regular in contour, or broken up with projecting fittings or accessories. The insulation may be indoors or outdoors. It may be subjected to abuse, or to severe vibration or mechanical abrasion.

Because, for any specific service, there is one type and form of insulation that will serve better, more economically, than any other, JOHNS-MANVILLE has maintained its insulation line complete. Through three-quarters of a century, J-M Insulating Products have kept pace with industry's requirements. Higher temperatures, more severe service condi-

tions, have been met by improvements in existing materials or by the development of new ones.

For many years, this research and development work has been carried on daily in the J-M Thermal Insulation Laboratory, the largest and best equipped in the world. Here, too, every possible type of insulating material is thoroughly tested, not only as to thermal conductivity, but also with respect to every chemical and physical property. Below-zero cold rooms and high temperature furnaces are used to eliminate the slightest necessity for guess-work in the final conclusions as to how the material will perform in actual service.

From the four mineral products—asbestos, magnesium carbonate, diatomaceous silica (Celite), and rock or mineral wool—JOHNS-MANVILLE produces insulation in the forms of sectional pipe covering; insulating sheets, blocks, bricks and blankets; insulating cements, fillers and finishes; insulating papers and felts; as well as a lightweight aggregate used with portland cement for making insulating concrete. A wide range of hair felt products completes the line.

Materials are available for use throughout the entire range of temperatures used in industrial processes, from the extreme sub-zero temperatures used in the treatment of oils, chemicals, etc., to 3000° F., and more, in many modern industrial plants. The temperatures indicated in the chart on page 3 are those to which the insulation will be subjected, rather than process temperatures.

Maintaining a line so unusually complete, JOHNS-MANVILLE is able to offer unbiased recommendations. We can help you choose from all available types of insulation those materials that have proved to be most effective in reducing operating costs and increasing operating efficiency under any particular service conditions.

For the interesting story of research in heat control carried on in the J-M Thermal Insulation Laboratory, ask for the booklet "Guardians of the B.t.u." A copy may be obtained on request from any J-M office.



From this switchboard electric current is supplied to the heaters in the conductivity testing units at the Insulation Laboratories. Power to any heater may be measured to within ½ of 1 per cent.





One of the testing rooms shown in the circle to the left is a room pipe insulation for thermal efficiency. Current is supplied to a six-foot section of electrically heated pipe. Thermocouple and power wires to the test, the thermocouple wires being connected with the thermocouple switchboard shown at the left below. Here with the aid of a single precision potentiometer, temperatures are measured to within 1/3 of 1 degree. Temperatures may be measured at about 800 different points.

Three Views of Equipment used in Johns-Manville Laboratory to Test Thermal Conductivity



Flue Insulation with J-M 85% Magnesia

The blocks are here shown wired on and ready for final cement coat

Johns-Manville
SHEET AND BLOCK INSULATION FOR HEATED SURFACES

For insulating heated flat or curved metal surfaces and boiler or furnace walls or roofs, Johns-Manville supplies a varied line of block and sheet products from which the best material for any given service may be chosen.

J-M 85% Magnesia Blocks
(For Temperatures to 600° F.)

For many years the standard insulation in the moderate temperature field, J-M 85% Magnesia still ranks as the most generally satisfactory and economical material in block form for service up to 600° F. It is particularly adapted to conditions requiring high insulating value and light weight, or where it is necessary to use a material easily cut and fitted.

J-M 85% Magnesia blocks are furnished in standard sizes 3 x 18 in. and 6 x 36 in., flat or curved, from ½ to 4 in. thick. Other sizes, and lagging, on special order. Weight about 1.4 lbs. per sq. ft., per inch thick. Also furnished in the form of sectional pipe insulation (see page 9).

The field of usefulness for J-M 85% Magnesia was greatly broadened through the development by JOHNS-MANVILLE of Superex Block, which withstands temperatures to 1900° F. The high insulating efficiency of J-M 85% Magnesia may be utilized in boiler settings, furnaces and other high temperature industrial equipment by installing the 85% Magnesia outside an inner layer of Superex. This construction, known as Superex Combination Insulation, is treated more fully on the following page.



Superex Combination Insulation

(Superex Block next to the fire brick followed by a layer of 85% Magnesia). Used here to insulate the furnace of an oil-cracking unit.

FIFTY-EIGHT J-M OFFICES *are at Your Service*

At each of the offices listed below you will find representatives fully qualified to answer any questions about Johns-Manville products, and to assist you in problems where J-M Materials can be of service.

AKRON	MINNEAPOLIS
ATLANTA	NEWARK
BALTIMORE	NEW ORLEANS
BIRMINGHAM	NEW YORK
BOSTON	OAKLAND
BUFFALO	OMAHA
CHARLESTON, W. VA.	PHILADELPHIA
CHARLOTTE	PITTSBURGH
CHICAGO	PORTLAND, ME.
CINCINNATI	PORTLAND, ORE.
CLEVELAND	PROVIDENCE
COLUMBUS	RICHMOND
DALLAS	ROCHESTER
DAYTON	ST. LOUIS
DENVER	SALT LAKE CITY
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EL PASO	SEATTLE
ERIE	SYRACUSE
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Johns-Manville

EXECUTIVE OFFICES

22 East 40th Street New York, N. Y.

JOHNS-MANVILLE JM PRODUCTS

78 YEARS OF SERVICE TO INDUSTRY