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MAY 1965

U.S DEPARTMENT OF LABOR

Washington

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PLAINTIFF'S EXHIBIT 14 11-13-79

RECORDS AUTHENTICATION CERTIFICATE

I HEREBY ATTEST, That the annexed copy, or each of the specified number of copies, of each document listed below is a true copy of a document in the official custody of the Department of Labor.

1 copy each of:
Transcripts from March 14,15,16, and 17
Comments and hearing exhibits of:
W.J. Nicholson, American Petroleum Institute, D.A. Holaday, Brand Insulations Inc., L.J. Bibri, B.J. Phillips(Certain-teed), M.W. Borow, J.D. Moran(Flintkote), F.L. Pundsack(J-M), J.W. Rawlings, W.M. Hancock(Dow), W.K. Hesse(J-M), E.M. Fenner(J-M), E.J. Killian(Nat. Gypsum), Cement Asbestos Products Co., M.M. Key, G.E. Best(MCA)

SIGNATURE AND OFFICIAL TITLE	DIVISION AND BUREAU	DATE
Daniel J. Marsick Technical Information Specialist	Docket Office/Technical Data Center/Occup. Sfty & Hlth Adm/ U.S. Dept. of Labor	7 Sep 78

I HEREBY CERTIFY, That Daniel J. Marsick who signed the foregoing attestation, is now and was at the time of signing (title) Technical Information Specialist and has legal custody of the official records of the United States Department of Labor therein attested and that full faith and credit should be given to his act as such.

IN WITNESS WHEREOF, I J. J. Lafranchise duly designated by the Secretary of Labor as Authentication Officer of the Department of Labor, have hereunto subscribed my name and caused the seal of the Department of Labor to be affixed this 7th day of September 19 78.

J. J. Lafranchise
Authentication Officer
Department of Labor

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GPO 942-641

M-316

CRMC-Motley1000-Subj-001595

UNITED STATES DEPARTMENT OF LABOR

WASHINGTON, D.C.

In the Matter of:	
STANDARD FOR EXPOSURE TO ASBESTOS DUST, PROPOSED RULE MAKING	PUBLIC HEARING

Conference Room B
Interdepartmental Auditorium
12th & Constitution Ave., N.W.
Washington, D.C.
Thursday, March 16, 1972

The above-entitled matter came on for further hearing, pursuant to recess, at 9:00 o'clock, a.m., Thursday, March 16, 1972.

BEFORE:

ARTHUR N. GOLDBERG, Hearing Examiner

APPEARANCES:

(As heretofore noted.)

CRMC-Motley1000-Subj-001596

The evidence to support this view is of four varieties, as follows:

1. The percentage of asbestos fiber contained in the various insulations has decreased over the years.
2. New non-asbestos-containing insulations have been introduced, and now account for a sizable share of the total volume of insulations used in this country.
3. In the past 40 years, despite the substantial growth of the insulations trade, the total amount of asbestos fiber used in the manufacture of insulations has remained essentially the same.
4. Special plastic and metal finishes, and metal jackets have been developed to replace the asbestos-containing finishes and jackets used previously, thus reducing the asbestos dust from the insulations these products protect.

In the 1930's, the most commonly used insulation materials included the high temperature products such as 85% Magnesia, diatomaceous silica, and molded asbestos fibrous insulation. These insulations were produced in block and pipe forms for temperatures above 250°F, and contained from 14 per cent to 77 per cent asbestos fiber by weight. This group of insulations accounted for approximately 64 per cent of the total volume of insulation materials used in the United States during this period.

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Another 35 per cent of the total volume of insulations used consisted of so-called low pressure insulations. These included air cell sheets and pipe insulation, consisting of alternating corrugated and plain asbestos paper bonded with sodium silicate; and wool felt sheets and pipe insulation, consisting of rag and wool fiber paper laminated and bonded with various adhesives. These materials were used for temperatures between 50°F and 250°F, and contained about 75 per cent asbestos by weight.

Supplementing these low pressure materials were so-called "mine" cements, consisting almost entirely of short grade asbestos fiber. These cements were mixed with water and used to point up joints in molded or formed block and pipe insulation, to insulate various pipe fittings, and as a finish over block applications. When applied as a finish, the cement was usually applied in a first coat mixed only with water, and then in a second or "hard finish" coat mixed with Portland cement. Although these mine cements were practically 100 per cent asbestos fiber, they accounted for only about 1 per cent of the total insulation market in the United States.

A second type of insulating cement, consisting of mineral wool combined with some asbestos fiber plus clay, found limited usage as an insulation for irregular surfaces.

The following table shows the percentages by weight of the two varieties of asbestos fiber - chrysotile and amosite - contained

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in the various insulations used in the 1930's.

TABLE 1

Material	Total % by Weight of Asbestos	% Chrysotile	% Amosite
85% Magnesia	14	7	7
Diatomaceous Silica	10	3.5	6.5
Fibrous	77	-	77
Air Cell	75	75	-
Mine Cements	100	100	-
Mineral Wool Cement	17	17	-

As can be seen from Table I, for all practical purposes 100 per cent of the insulations used in the 1930's contained at least some asbestos fiber, the percentages of fiber by weight ranging from a low of 10 per cent for diatomaceous silica to 100 per cent for "mine" cements.

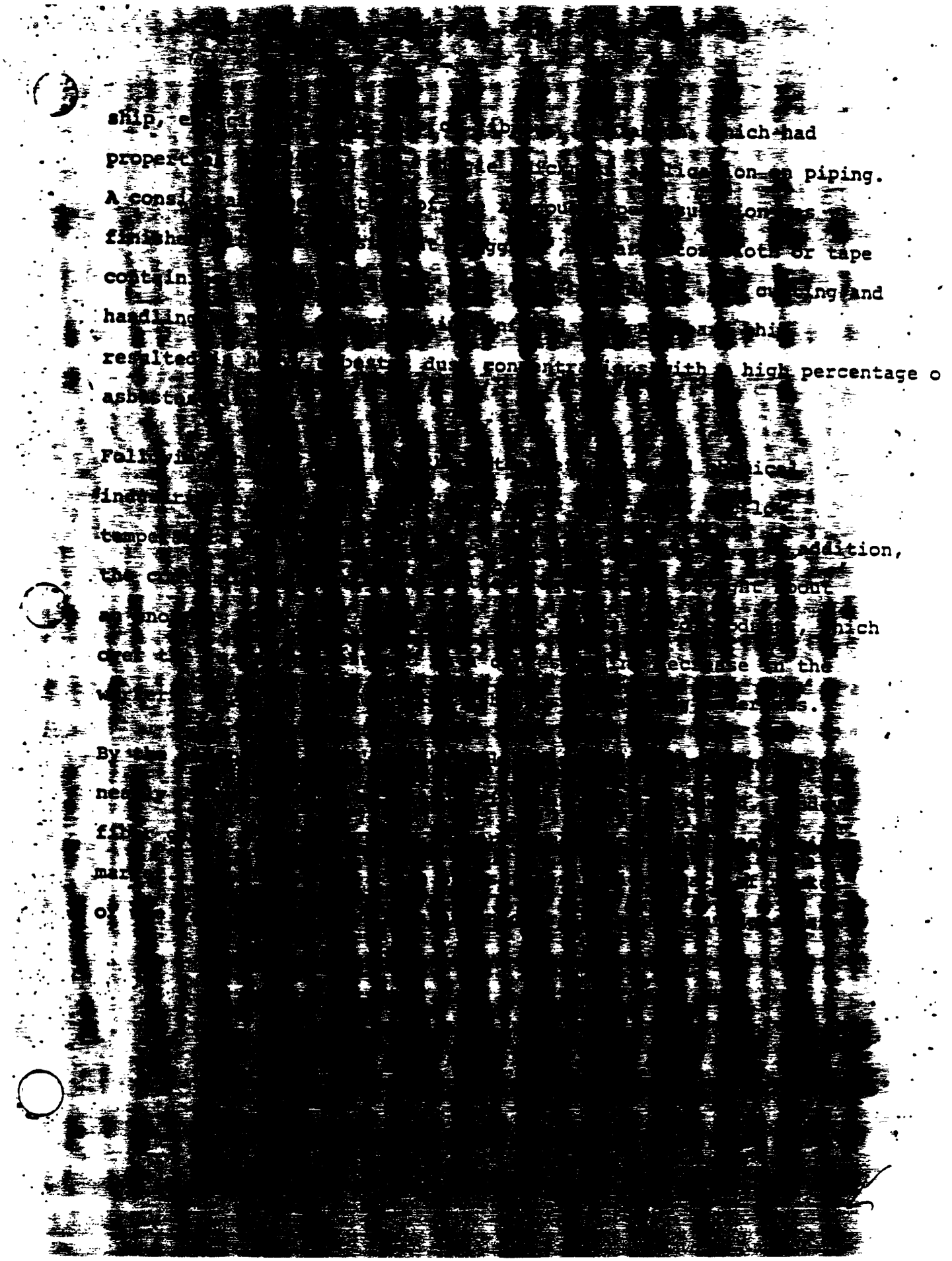
In the early 1940's at the beginning of World War II, a new product, calcium silicate, was added to the high temperature group and later began to replace 85% Magnesia and diatomaceous silica as an insulation, primarily for applications in the 300°F to 1200°F. temperature range. Like the materials it was replacing, calcium silicate also contained asbestos fiber but only about 11 per cent by weight.

The enormous shipbuilding program of the United States during the war years resulted in a huge increase in insulation work aboard

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TABLE II

Types of Insulations	Decades			
	1930-40	40-50	50-60	60-70
High Temperature	64%	43%	37%	27%
Low Pressure*	35	33	27	23
Fiber Glass	-	23	35	50
Mine Cement	1	.75	.63	.52

*Includes insulating and finishing cements other than mine cements.

Because the share of market of the various asbestos-containing insulations decreased sharply, especially in the past 20 years, the total volume of asbestos fiber used in the manufacture of these products has remained essentially the same over the past 40 years despite the substantial growth of the insulations industry. The quantity of asbestos fiber used in insulation materials was approximate 16,600 short tons in 1930 and only 16,100 short tons in 1965, while asbestos fiber production on the whole has increased more than 400 per cent during the same period.

In the 1950's and 60's, not only did fiber glass take over the major share of the insulations market, but there was also a marked downward shift in the percentage content of asbestos in some of the established insulating materials. 85% Magnesia, for example, which has recently disappeared from the market, dropped from a percentage content by weight of 14 per cent asbestos fiber in the 1930's

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and 40's to 10.5 per cent in the 1950's and to 7 per cent in the early 60's. Calcium silicate dropped from 11 per cent amosite fiber to 7.5 per cent chrysotile, and fibrous insulation dropped from 77 per cent amosite to 58 per cent amosite. In addition, one-coat hydraulic setting mineral fiber cement, with a 15 per cent asbestos fibe content, began to replace the old two-coat mine cement, with its 100 per cent asbestos fiber content, as a finishing material.

The following table shows the changes in the percentages by weight of the two varieties of asbestos fiber contained in the various insulations over the past four decades.

TABLE III

Material	% By Weight and Type of Asbestos Fiber			
	1930-40	1940-50	1950-60	1960-70
85% Magnesia	14 (7C*&7A**)	14 (7C&7A)	10.5 (3.5C&7A)	7A
Calcium Silicate	-	11A	10A	7.5C
Diatomaceous Silica	10 (3.5C&6.5A)	10 (3.5C&6.5A)	10 (3.5C&6.5A)	7A
Fibrous	77A	77A	58A	58A
Air Cell	75C	75C	75C	75C
Mine Cement	100C	100C	100C	100C
Mineral Fiber	17C	17C	17C	17C
One-Coat Mineral Fiber Cement	-	15C	15C	15C

*Chrysotile

**Amosite

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In the last decade, sheet metal has grown in importance as a finish over insulations on large equipment applications, with a corresponding drop in the use of asbestos-containing finishing cements. Factory-applied metal jacketing on pipe insulation has also found increasing usage, replacing the asphalt-saturated asbestos jackets previously used. Most recently, factory-scored block insulations and molded-to-shape fittings have been developed to cut down on machining and other asbestos dust-producing procedures.

In summary, the evidence indicates that the amount of asbestos dust to which insulation workers are exposed has decreased substantially between the years of 1945 and 1970. Those insulation workers with twenty or fewer years of employment thus have had significantly less exposure to asbestos dust than their older working companions.

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