PLAINTIFF'S EXHIBIT

ATI-193

October 17, 1955

MINUTES OF THE ASBESTOS TEXTILE INSTITUTE

AIR HYGIENE COMMITTEE MEETING

September 7, 1955

IN ATTENDANCE WERE: D. R. Holmes
J. W. Weber
R. C. Smith
H. M. Jackson

The Air Hygiene Committee was most pleased to have as its guests representatives of the Quebec Mining Association - Dr. Paul Cartier, Mr. Ivan Sabourin and Mr. Maurice La Chance.

Mr. Sabourin, general counsel for the Q.A.M.A. told of the history and function of that association. The Quebec Asbestos Mining Association has been operating for approximately 20 years, and its membership represents approximately 65% of the world supply of asbestos fibre. As an industry association, it functions quite similarly to the Asbestos Textile Institute. Considerable attention is given the health problems of the industry. There are two medical clinics; one at Asbestos, the other at Thetford, both fully staffed and with complete hospital facilities. Pre-employment and periodic health examinations are provided for all workers. Safety engineering services have been provided by the Association to its members for a number of years. More recently, an industrial hygiene engineer has been added to its staff. As a result of the industry emphasis on health, safety and dust control for the past ten years, there are practically no new cases of asbestosis other than those with twenty or more years exposure. Mr. Sabourin stated that the present major health problems of the industry pertained to the relationship of heart difficulties and cancer to asbestos exposure.

Dr. Paul Cartier told of the operation of the Thetford Clinic. Established in 1945, the Clinic provides health services to the Thetford people. Pre-employment and periodic annual examinations include an X-ray and electrocardiagram, as well as the other usual examination features.

Commenting on the occurrence of asbestosis, Dr. Cartier indicated that after ten years exposure, about 50% would have some histological evidence of asbestosis (minimal tissue changes not sufficient to be observed on the X-ray), 10% would have some radiological evidence and 2% might have some clinical evidence of disability from asbestosis.

In reference to the pulmonary cancer experience in the industry, Dr. Cartier stated that in the ten years of the clinic's operation, there have been fifteen cases of cancer observed. Nine of these on autopsy showed some histological evidence of asbestosis. In six, however, there was no evidence of asbestosis. This experience would indicate a very much lower attack rate than that reported from the British experience of 13%.

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topsy study is made of every occupational disease claim case, and as many others as possible. Dr. Cartier stated that this was of utmost importance not only in determining the extent of liability, but also in increasing the knowledge of the disease process. The clinic has not done any work with intermittent, positive pressure breathing, although some use of cortisone is being made. The experience to date, however, has been insufficient to justify any conclusions.

Dr. Cartier expressed the opinion that considerable research must be done in the fields of cancer and heart to define more clearly the role, if any, played by inhalation of asbestos.

Mr. Maurice La Chance told of the experience in dust control in the mines and mills of the Association members. Annual dust surveys are made at eleven mines and reports submitted to each. The standard U. S. Bureau of Mines technique is used for surveying with the midget impinger. For fibre evaluation, the definition of the length being three times the width is applied. Mr. La Chance stated that since the program was inaugurated in 1946, the average dust concentrations have been reduced 50%. In general, the fibre content of the total dust count ranged from 1% to 12%. In his opinion, the most effective dust collector system to date is the bag type Wheelabrator unit.

John Weber reported on the bag dumping unit now in operation in his plant. Photographs were shown and John indicated that full details may be obtained from the Elkra Company, 71 Denton Avenue, New Hyde Park, Long Island, N. Y. Although dust counts have not yet been taken, visual observation indicates complete control of this usually dusty operation. The unit has not been in operation sufficiently long to estimate the maintenance and operating cost. The shaking cycle is less than one minute per bag, and John indicated that the bags were shaken considerably cleaner than by the hand method.

A general discussion of fibre conditioning agents was held, and it was suggested that the experience of our associate members might be of value to the technical committee which is further investigating this problem. We herewith extend an invitation to each associate member to forward a summary of its experience with fibre conditioning as a means of preventing dust control.

H. H. Jackson
Chairman
Air Hygiene Committee

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Dust Control by Means of Fiber Treatment
as
Practiced in the Asbestos Textile Industry

Introduction

Down through the years the manufacturers of asbestos textiles and other asbestos products have endeavored to reduce and control the amount of dust resulting from the processing of fibers utilized by this industry. Other fiber processing industries have successfully used oils and emulsions for such purposes and it has been assumed that some such techniques should be as applicable and equally successful within the asbestos industries. However, such has not proven to be wholly the case and, in most instances, the results have not warranted the processing involved.

In order that a composite picture and understanding of the industry's efforts along these lines might be had, the Air Hygiene Committee of the Asbestos Textile Institute has collected and assembled the views and expressions of experience of its members and the compilation of these remarks is herewith set forth. The indentities of the contributors are not here revealed, however, the results as reported are verbatim as submitted and the over-all expressions present the representative views of that segment of our industry which is cooperating in this endeavor.

Company A - (1)

Our experience in using Asbestos Fibre conditioning oils, emulsions, water, etc. dates back to January 1925.

Our first experience was use of the Bourne Schrymser Process of applying Breton Mineral Oil "E".

This oil was applied by sprays into the Fearnaught Picker - Feed Hopper - approximately 2% - by weight. After probably two (2) years it was abandoned with conclusions as follows:- No noticeable difference in dust reduction. Tests showed no improvement in waste, running conditions, or in yarn tensile.

Plenty of trouble was had with unequal distribution of the oil - gobs of oil soaked fibre which clogged up our card clothing.

In 1929 we used #1 and #2 Furnace Oil (Gas Oil). This too was sprayed into the Picker Feed Hopper (DeVilbiss Spray). About 3% by weight was applied. Dust seemed to be less but dust counts were not then being taken.

We tried an emulsion with Fuel Oil, also soluble cutting oil, and Atlantic Wool Oil "B". This latter was used on harsh Arizona Fibre and Amosite.

The yarns containing Fuel Oil could be used only for Woven Friction Materials - not on any product containing rubber.

In 1930 we aspirated our stock to the 2nd Floor by air - then tried spraying the oil into the ducts. This was very unsatisfactory due to stock sticking to the pipes.

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s used sprinkling cans at the batching units. This application was as satisfactory as any spraying but still we get oil soaked gobs of stock. Our oiled stock was stored in large bins - we had to discontinue oiling at this period because of the fire hazard.

We then used an emulsion 89 pounds Gulf #372 oil, 100 pounds water, 2.8 pounds Triethanolomine and 6 pounds Oleic Acid.

In 1938 we blended #1 Furnace oil two (2) bolumes with Gulf oil #372 one (1) volume.

In 1940 we used Sun Oil Co. #592 Asbestos Fibre conditioning oil also used Sun Oil #536. This we used for about three (3) years. In fact we installed two (2) 5000 gallon tanks and bought in carload lots. This was applied to the batch by sprinkling can.

We tried Gulf #560 with a flash point 320 degrees F.

In 1944 we installed the Texas Company's Texspray on our cotton machine - we hoped to get enough oil on the cotton so that in carding the asbestos would absorb sufficient to reduce the dust. We could apply only about .5% (1/2 of 1%). This only helped to reduce the static in unrolling the blend of cotton and rayon laps. It did not reduce dust at the cards.

In January 1947 we discontinued oiling asbestos stock.

In our experience we have run a card for six (6) weeks with stock wet with water by sprinkling cans at the batch. Running conditions were satisfactory and no damage done the card clothing. We use a small amount of Amosite - this is wet in the pan crusher with 6% water.

It is the opinion of our Mill Management and our Laboratory that it takes 8 to 10% water or oil to appreciably reduce asbestos dust and in carding this is detrimental to good running conditions.

In 1951 our interest was again revived in this subject because of a report from an Asbestos Manufacturer in England. It was reported that this company is oiling asbestos stock by loading about 1500 pounds in a cylinder 14 feet x 3 feet and spraying oil therein while the cylinder is revolving. They are using 50% mineral oil, 50% water plus the emulsifying agent. We have done no experimental work along this line.

Company A - (2)

The unit we use to moisten asbestos yarn on Whitin L-Frame bobbins (approximately 26 oz.) is the Hygrolit Yarn Conditioning Machine (print enclosed), made by Kearny Mfg. Co., Inc., Kearny, New Jersey - Model #3AY modified. The "modified" means that the machine does not contain pump and filters usually furnished as a part of the machine when recirculating the wetting agent. Kearny Company make and sell this compound. We use only water.

This equipment was installed in May 1950 - we started to wet all yarns, both metallic and non-metallic except those used in our Packing Dept. which yarns are treated with various oil compounds.

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's use wood bobbins and experienced splitting due to water until we treated the bbbin with Penta-oil.

The percentage of moisture picked up by two passes averaged 7 to 8% - 15% on outside of the bobbin and about 5% on the inside after standing in a truck covered with wet blanket for 4 to 8 hours.

The percentage of moisture in the twisted yarn varied from 5 to 7% depending on type and amount of brass, zinc, copper or lead wire.

During the three year period in operating we experienced difficulty with one type of yarn after another - yarn containing brass and zinc wire after being in the bins for weeks corroded, and caused trouble in weaving.

Since the yarns are not uniformly wetted we'd get spots very wet. This reduced the tensile in 12 cut and lighter yarns to the extent that the yarns broke at the bobbin (our bobbins are placed horizontally on the twister spindles).

Last July and August was very humid and for several months we discontinued use of the Hygrolit machine. October 1953 we again started it's use but put the yarn thru once only which cut the amount of moisture in half.

We are not too much concerned about the variation in moisture from yard to yard because in twisting 2, 3, or 4 ply the finished yarn is pretty uniform. Personally I cannot see any great advantage in running with 3% moisture. Our xperience is and has been that it takes 7 to 8% moisture to reduce the dust o any extent.

We have not had dust counts taken to measure the difference but are now considering purchasing equipment and training a man to do so.

Within the last five years we have replaced some of our twisters with fly frames and know that the dust is less on these machines. To what extent this is affected by spindle speed we do not know. This week we are cutting the twister spindle speed from 2200 to 1100 on one machine for test.

Company B

We feel that there are many advantages to be gained from "Fiber Conditioning". Probably the two most outstanding advantages are; Increased Yarn Strength and Dust Reducing.

Our experimenting has been done with the idea that the fibers should be passed through a mist of liquid to enable them to become completely conditioned. This has been accomplished with a certain degree of success in the air space between one of our Vertical Openers and it's Delivery Screen Section. The difficulty here has been that if the flow of material decreases, then there is too much conditioning agent for the amount of fibers. We also have experienced trouble with the spray head dripping and having large drops of the agent present, however, we believe that in time both of these difficulties could be corrected.

.e have experimented with the following Conditioning Agents, attempting to apply 1% by weight to the fibers:

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(1) - Wool Oil Lubricant #E-748-R purchased from Emery Industries, Cincinnati, Ohio. This was used as a 1 to 5 water emulsion solution. However we were not entirely satisfied with this agent, since it was costly and involved mixing with water.

(2) - 3F Gulf Fiber Spray Oil purchased from The Gulf Oil Company. This was used full strength directly from the drum. We were very pleased with this agent from a dust and fiber loss improvement angle, however there was no improvement in the strength of yarns.

Company C

About five years ago we experimented with cytron ludox as a fibre conditioning agent. This was used at a strength of about 1%.

Our experiments with the type of silica conditioning agent were not satisfactory due to clogging of the nozzles caused by the silica hardening each time the spray was stopped. After several months of attempting to overcome this difficulty we abandoned our fibre conditioning system.

In response to the project undertaken by the Air Hygiene Committee, we have investigated materials sold by three Companies.

We first called in Bill Bierlin of the New York & New Jersey Lubricant Co. who advised us that they did not have an asbestos conditioning oil among their products. However, Mr. Bierline advanced this information. He advised that some asbestos manufacturers were using a combination of Essotex oil, 25%, and Gulf 896, 75%. This is a high flash, clear solvent. He also advised that some carpet yarn manufacturers and asbestos yarn manufacturers installed the spray equipment at the feed boxes or in the blending units at the Picker Room. He advised that a Monarch oil burner spray nozzle is used pre-metered in gallons per hr., rating 5/10 of a gl. per hr. to be sprayed on 1,000 lbs. per hr.. of mixing.

The price of these oil burners spray nozzles is $1.15 each and they recommend at least three nozzles per installation. The pump used on these installations is a gear type pump manufactured by Brown and Sharp. It is their #11 pump. Cost is $35.00. This pump should be equipped with a 1200 rpm quarter horse motor. The cost of this pump is approximately $35.00. The usual installation is set up using a 3/8" pipe with a by-pass to take off excess solution. This equipment has been set up in a carpet mill for a total price of $77.00 and could possibly be set up in any mill for under $100.00, including nozzles, pump, motor and pipe.

Sun Oil Company

They advised that their #538-Solnus blending oil for asbestos fibre conditioning be used. Some of the members of our Institute are now using this type of oil which is a mineral oil base. Dr. Manning, Textile Research Director, Sun Oil Co., advised that to his knowledge where this installation is being used, it is very successful. He recommends that about 1/2 of 1% to 1% of this 538 oil be used and particularly if 1/2 of 1% is used, it should have no detrimental effects whatsoever on any product being manufactured in our industry.

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roctor & Gamble

We contacted Mr. H. F. Hebel, Field Mgr. of the Textile Finishes Sales Dept., 33rd & Arch Sts., Phila., Pa. Mr. Hebel gave the writer a run down on products which they manufactured for textile finishing of yarns; also, yarn conditioning emulsions. They are now in the process of experimenting in their lab with some of our yarn with their various emulsions and they may come up with a recommendation within the next few weeks.

We have recently installed a spray pump equipment using Monarch type oil burners spray nozzles. We have installed three of these nozzles in our 2nd feed box and we made a trial run spraying our mixings with this method. However, we only used about 1/2 of 1% of the Sun Oil 538 blending oil. We are going to make an additional installation at our 2nd blending feed on the conveyer which will give us two sources of supply and will also bring up our spraying from 1/2 of 1% to 1%. This will be done by placing three additional spray nozzles at the blending feeds.

We will not make any further tests with this spray equipment until we can have Mr. Williard, the State Inspector, present when in operation because we wish to make comparisons of air sampling while the spray equipment is in operation as opposed to when it is shut down in order that we may evaluate our dust conditions with or without this spray method. I hope that Mr. Williard will be with us within the next few weeks and at that time these tests can be made.

mpany D

Sun #538 and Gulf #561 is being used. Both have been found quite suitable in reducing the dust during the various operations. The amount of oil applied amounts to approximately three-fourths to one percent. The oil is applied by means of compressed air-operated spray guns.

Colloidal silica has been experimented with and while it has given satisfactory results in regards to reducing dust conditions, it was found to be difficult to handle inasmuch as the openings on the spray heads would frequently clog. For this reason the use of silica as a lubricant has been discontinued.

Company E

METHODS USED

1. Applying oil spray manually with DeVilbiss gun to fiber layers only in floor batching.

2. Applying oil spray with a mechanical traveling spray on the feed apron of the picker.

3. After employing either methods 1 or 2, allowing material to stand 24 hours before carding.

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RESULTS OF METHODS 1 AND 2.

As there was basically not too much difference in these methods, the results also were not too apparent.

The oil used was Sun Oil Asbestos Fiber Conditioning Oil #538. In accordance with the advice of Dr. Manning, of the Sun Oil Company, initial applications were one-half per cent oil, because in his experience, three-fourths to one per cent caused dropping ends and created an excessive fire hazard.

While these concentrations caused no difficulties on the machines, the dust conditions were not noticeably improved. It should be recognized however, that these were visual observations not substantiated by dust-counts, and therefore are subject to question.

The concentrations were raised to as high as three per cent before some improvement in dust conditions were observed. These high concentrations caused such great difficulty in carding that the process was unfeasible. The material clogged the wires on the cards and gummed the tape condensers.

The finished product at the high concentrations also did not meet purity standards for certain uses.

RESULTS OF METHOD 3.

Because the oil-sprayed material exhibited a tendency to agglomerate and cause uneven distribution on the card cylinders, the material was allowed to stand 24 hours before carding in the hope that the oil would diffuse evenly throughout. If diffusion did occur, and this is problematic, no improvement was noted in the carding operations.

CONCLUSION

The questionable advantages did not justify continued use of the oil spray methods, and it was dropped after a short period of use.

Company F.

a) Methods used: [redacted] of our work has been done by pressure spraying.
b) Agents, from standpoint of effectiveness: The only agent that we use that has any effectiveness in dust control is spraying oils, and these can only be used where the end product will permit.
c) Agents, from the standpoint of undesirable properties:

1.) Saponifiable oils - not desirable because evaporation rate too low for production purposes.
2.) Propylene Glycol - does not give any improvements over standard operating conditions.
) Water Soluble Resins - does not give any improvements over standard operating conditions.

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