ASBESTOS INFORMATION ASSOCIATION
NORTH AMERICA
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① x/c Dr. Welsh
② File - w enc
OSHA Sec.

17 September 1976

Docket Officer
Docket H-033
U.S. Department of Labor
Room N-3620
200 Constitution Avenue, N.W.
Washington, D. C. 20210

Dear Sir:

Please refer to this Association's letter of 8 April 1976 and accompanying documents prepared and submitted in response to the proposed revision to the standard for occupational exposure to asbestos (29 CFR, Part 1910) as published in the Federal Register, October 9, 1975.

In the Association's response exception is taken to the statements on "New Evidence" noted at pages 47655-6, Federal Register, October 9, 1975. Specifically, it is stated, at page three, Volume I of the Association's response:

> "Our review of the literature indicates that no credible epidemiological studies have been published which would suggest an excess of malignant tumors among persons exposed to no more than 2 asbestos fibers per cc of air (TWA), using the prescribed membrane filter test method. This is a fact simply because there have yet been identified for study no populations the exposure experience of which consistently has been as low as 2 fibers. Since all populations studies to date have been exposed to substantially higher concentrations of airborne asbestos we can conclude only that an excess of all types of asbestos disease is associated with levels of exposure significantly higher than the level currently mandated to become effective on July 1, 1976."

This summary statement is made on the basis of the study and review prepared by Hans Weill, M.D., Professor of Medicine, Tulane University, which is at Part 3, Volume I of the Association's response.

03145

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Attention is invited to Dr. Weill's comments on the importance placed by OSHA on the orally presented (not published) report attributed to Howard, Kinlen, Lewinsohn, Peto and Doll: "A Mortality Study Among Workers in an English Asbestos Factory," XVIII International Congress on Occupational Health, Brighton, England (1975). This report is noted at reference 30, proposed revision to OSHA standard for Occupational Exposure to Asbestos. Attention in further invited to the Johns-Manville Corporation comments on misinterpretation of the "English Asbestos Factory" studies. The J-M comments were formally presented to the Docket Officer (H-033) by letter dated April 9, 1976 and are part of the official OSHA record.

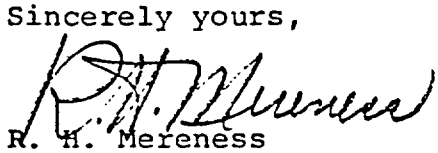
For the purpose of fully clarifying the record on this matter, this Association requested TBA Industrial Products Ltd., parent organization of the referenced "English Asbestos Factory," to provide the data developed from the study. This data and accompanying statement from TBA Industrial Products Ltd. is herewith transmitted to OSHA as a supplement to the Association's comments of April 8.

The statement and supporting tables substantiate the assertions made by Dr. Weill and the Johns-Manville Corporation that the cohort emphasized in the OSHA document provide no data to impugn the adequacy of the current U.S. standard of two asbestos fibers/ml, TWA.

Please be advised that appropriate expert personnel from TBA Industrial Products Ltd. are prepared to testify at public hearing for the purpose of eliminating any possible further confusion as regards this matter.

Acknowledgment is requested that this letter and its enclosure are included in the official record of the rulemaking procedure for consideration of revision to the standard for occupational exposure to asbestos.

Sincerely yours,



R. H. Mereness
Executive Director

RHM:v
Enclosures

03146

STATEMENT BY TBA INDUSTRIAL PRODUCTS LTD.

OSHA ENQUIRY

As a processor of asbestos fibre and manufacturer of asbestos textiles for almost 100 years, this Company has a unique record of experience in the field of asbestos and asbestos-related diseases. It has co-operated with U.K.Government Departments in the recognition of asbestos-related diseases and has carried out its own research into the health of its workers and means by which environmental working conditions could be monitored and improved to make them safer.

Because of this background and the fact that we appear to have been alone in our early attempts to correlate long-term exposure to asbestos airborne dust and the health history of the labour force, a degree of importance has been attached to this work which was never expected and in some quarters our work has taken on the mantle of a world authority.

In January, 1976 we were approached by Dr. Hans Weill, Medical Consultant to the A.I.A., North America, with a request for detailed information on any "new evidence" which was available to relate to the OSHA proposal for a reduction in the U.S. Occupational Exposure Standard for asbestos dust from 5 fibres/ml to 0.5 fibres/ml.

Data was made available on a cohort of our workers with at least 10 years exposure to asbestos dust but with no exposure prior to 1st January, 1951. This data included :-

(a) details of dust counts taken in our factory by static membrane filter technique between 1961 and 1972. This information describes the location, mean dust concentration, standard deviation and number of samples.

1961 was the first year in which TBA used the membrane filter method for sampling, prior to this date the thermal precipitater had been used for sampling asbestos dust.

(b) Mortality and morbidity of the exposed workers in relation to comulative exposure in fibre years/ml, fibre years ml being the term used in adding the mean exposure rates for each year of exposure over the total period exposed.

The same data is herewith made available for use at the OSHA hearing.

We were given to understand that the view was mistakenly held in some quarters in the U.S.A. that dust levels in our particular factory had been at or below 2 fibres/ml for many years and it was against this background that the health record of our workers was being judged.

Whilst this was true for certain locations it was by no means the level which had obtained on many of our operations.

03147

The U.K. Asbestos Regulations 1969 (with their associated Technical Data Note 13) were the first attempt to specifically define permissible dust levels for asbestos airborne dust. These ... te a minimum T.L.V. of 2 fibres/ml with an upper limit of

It will be noted from Table 1 that the operations which have been below the 2 fibres/ml since 1965 and close to it prior to this date, were the Listing Looms and Cloth Looms in the Weaving Department. These results are indicative of the general conditions in this area of the factory.

Tables 9 and 10 show that no member of the cohort from the Weaving Department has been exposed to more than 75 fibre years/ml and furthermore there has been no incidence of asbestos-related disease amongst any of these workers.

Table 3 compares actual and observed death of the whole cohort with the expected rates from national statistics for this geographical region.

The six deaths from lung cancer are also itemised in Table 8 against their personal history in relation to asbestos exposure and smoking habits.

Our hygiene programme at this factory has continued to steadily improve working conditions over the years and the current target of 2 fibres/ml in all working areas, where respirator protection is not required to be worn, will be achieved by 1st January, 1977.

The interpretation of our data in relation to the risk of disease from inhaled asbestos dust has been left to recognised medical authorities and their statisticians who specialise in studying asbestos diseases.

Dr. Hans Weill has also drawn his own conclusions from our data and we would hope this would provide a clearer understanding of the situation within our Company in case it had been misunderstood in the past.

If required we would be happy to give verbal clarification of any point relative to the data provided to Dr. Weill.

Signed. N. Rhodes

N. RHODES. 25/8/76

03148

TABLE 1

UNITED KINGDOM - ASBESTOS TEXTILE PLANT

AIRBORNE ASBESTOS DUST SURVEY RESULTS - 1961 to 1972

(Fibres/ml)

LOCATION		1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
ROVING FRAMES	MEAN	5.5	4.8	6.3	6.1	5.8	5.9	5.5	6.5	6.1	3.5	5.9	4.1
	SD	0.8	1.0	4.2	1.8	1.3	2.1	2.0	2.7	2.6	1.3	2.0	1.6
	N	7	10	11	13	9	37	60	32	25	44	31	29
WIRE BOUND STRAND	MEAN									-	-	-	2.1
	SD									-	-	-	0.6
	N									-	-	-	4
MRA CARDS	MEAN									-	-	-	1.7
	SD									-	-	-	0.9
	N									-	-	-	10
RING SPINNING	MEAN	4.2	3.4	3.1	3.4	2.9	1.9	2.5	2.5	2.5	1.2	2.4	1.3
	SD	1.3	0.9	1.5	1.5	1.1	0.4	1.1	0.7	1.7	1.1	1.8	1.0
	N	7	7	4	5	4	12	11	12	23	24	16	12
INTERMEDIATE SPINNING	MEAN	5.5	4.4	5.1	5.3	5.6	6.7	6.1	6.3	7.0	4.3	6.1	3.9
	SD	1.3	0.6	3.9	1.3	2.1	2.8	2.3	3.2	2.6	2.6	6.5	3.8
	N	7	7	6	10	6	24	31	30	24	50	31	18
FIBRE ROPE CARDS	MEAN	5.4	7.6	9.1	8.2	9.1	8.2	5.4	5.6	4.9	3.2	3.5	3.7
	SD	1.8	2.1	3.7	2.9	3.2	11.6	3.0	2.5	3.8	2.2	2.5	3.3
	N	7	12	12	11	11	28	31	32	31	23	3	10
COARSE CARDS (SINGLE)	MEAN				13.7	10.0	17.2	10.8	10.8	12.1	6.8	8.2	5.1
	SD				9.6	5.1	6.3	5.9	6.6	8.0	3.4	5.8	1.7
	N				14	11	19	33	32	28	31	55	35
FINE CARDS	MEAN	6.0	3.6	5.2	4.3	9.5	4.0	2.9	2.9	4.3	2.9	3.7	1.9
	SD	3.1	1.3	2.5	1.2	6.4	2.4	1.7	1.7	3.3	2.2	0.8	1.5
	N	7	8	6	6	7	21	32	26	31	26	20	12
ELECTRICAL SILVER CARDS	MEAN	5.4	4.4	4.6	4.5	2.2	1.1	1.1	1.5	1.1	1.0	1.6	2.0
	SD	1.9	1.8	1.7	2.1	1.9	0.3	0.5	0.8	0.8	1.0	0.9	1.9
	N	8	11	9	10	7	13	17	12	12	12	16	11
DUESBURY SPINNING FRAME	MEAN									3.5	-	3.8	3.4
	SD									0.7	-	0.5	3.1
	N									12	-	4	5
CARDING SECTION 1	MEAN						7.2	5.6	9.3	5.6	5.0	3.2	3.2
	SD						3.4	2.3	6.5	2.4	3.8	2.9	1.4
	N						24	38	39	27	33	39	20
CARDING SECTION 2	MEAN						5.4	4.6	5.6	6.0	4.2	3.5	3.7
	SD						3.2	1.3	2.2	1.9	1.2	1.9	1.5
	N						18	31	33	24	26	26	19
CARDING SECTION 3	MEAN						7.4	8.2	7.4	5.4	4.8	3.5	6.0
	SD						5.9	4.9	3.3	3.1	3.0	1.4	3.1
	N						24	34	33	24	26	23	32
CARDING SECTION 4	MEAN						6.8	6.1	4.8	3.3	3.3	2.6	2.7
	SD						3.6	1.7	2.4	6.4	1.6	0.7	1.0
	N						18	18	11	19	28	21	11
CARDING SECTION 5	MEAN						7.3	3.1	4.6	5.3	2.3	2.2	4.3
	SD						2.6	1.2	2.6	3.5	0.7	1.5	1.9
	N						14	19	23	25	26	21	15
CARDING SECTION 6	MEAN						8.8	8.0	7.7	1.4	4.6	7.0	6.6
	SD						4.8	2.7	3.9	1.1	1.9	3.7	6.7
	N						21	31	22	2	24	25	25
CARDING SECTION 7	MEAN						9.6	9.2	11.4	7.9	5.7	6.1	5.4
	SD						5.2	4.0	4.9	3.5	2.5	4.4	5.1
	N						25	32	37	27	28	29	20
CARDING SECTION 8	MEAN						9.3	10.1	8.6	8.9	7.4	5.3	2.4
	SD						5.8	5.2	4.6	4.2	3.0	2.6	4.1
	N						15	25	17	14	25	25	20
CARDING SECTION 9	MEAN						5.4	7.8	7.6	4.5	6.2	5.7	5.5
	SD						6.0	7.9	6.2	5.0	3.8	3.9	5.7
	N						15	24	16	21	25	40	37
FIBRE ROPE BRAIDER	MEAN	4.9	5.8	9.2	4.4	3.8	2.0	2.4	3.7	2.0	1.5	1.8	
	SD	1.4	2.0	2.2	1.2	1.4	1.3	1.6	2.0	1.7	1.3	1.1	
	N	7	11	10	11	9	20	25	22	29	25	25	
SINGLE CARD WEST	MEAN									3.9	-	3.7	
	SD									3.4	-	3.6	
	N									10	-	29	
FILTER GALLERY	MEAN						0.3	0.5	1.1	1.7	0.6		
	SD						0.4	0.5	0.5	1.6	0.3		
	N						6	13	12	12	11		
RO END CARDS	MEAN	4.9	5.9	8.1	5.9	9.3							
	SD	1.3	1.5	3.3	1.0	5.3							
	N	7	10	3	2	10							

03149

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LOCATION		1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
60/80 END CARDS	MEAN	9.9	5.9	10.8	13.6	11.2							
	SD	5.7	1.3	6.5	7.6	0.6							
	N	9	10	14	12	11							
FINE SPINNING	MEAN	3.6	2.7	3.9									
	SD	0.9	0.9	2.2									
	N	7	7	4									
WILLOW WASTE PICKER	MEAN					6.3	5.9	2.8	5.2	4.6	1.6	2.6	3.0
	SD					5.1	5.6	2.4	4.3	8.0	1.4	2.2	2.9
	N					4	13	24	20	23	21	24	25
MECHANICAL BAGGING	MEAN	3.8	4.0	5.0	4.6	4.6	3.7	2.5	2.7	6.8	5.3	4.2	6.3
	SD	1.4	1.0	3.1	1.9	3.5	2.4	2.3	1.1	6.3	5.9	1.7	4.5
	N	7	10	12	9	7	14	24	21	39	28	31	44
MIRACLE MILL BAGGING	MEAN						1.5	2.2			2.1	1.7	1.0
	SD						0.7	1.2			1.3	1.0	0.6
	N						8	4			7	14	10
MIRACLE MILL FEED	MEAN						2.0	2.9		7.8	1.9	2.0	1.4
	SD						0.9	1.0		0.1	1.0	0.9	1.1
	N						8	4		3	6	13	11
C.M. PLATFORM	MEAN									3.4	1.9	3.1	0.9
	SD									1.1	1.1	3.2	0.9
	N									8	23	22	16
BAG SLITTING	MEAN	4.7	3.1	3.5	3.3	5.6	5.8	4.0	6.2	4.7	1.9	3.0	2.6
	SD	1.6	1.9	3.0	1.5	1.8	4.7	1.6	4.9	4.8	0.9	1.5	1.3
	N	7	11	7	7	3	14	24	21	23	22	25	19
C.M. BAGGING	MEAN									2.8	2.9	3.4	2.9
	SD									1.2	2.0	1.9	2.4
	N									7	23	22	15
UNLOADING	MEAN		4.9	13.0	10.6	11.5	26.5	20.1	16.8	8.0	1.4		
	SD		.8	7.9	4.5	9.1	18.5	23.3	14.3	8.5	0.2		
	N		2	9	8	8	5	3	12	6	3		
STACKING	MEAN			22.8	27.9	31.9	35.6	13.3	5.7	3.0	4.2		
	SD			19.3	20.9	17.3	28.0	.0	5.1	2.1	2.9		
	N			6	6	7	5	3	3	9	3		
WILLOW OPENING	MEAN	5.1	4.6	6.4	5.5	5.9							
	SD	1.6	1.4	2.7	4.5	3.1							
	N	10	11	10	9	4							
YARN STOCK AREA	MEAN												2.6
	SD												0.3
	N												2
HEAVY TWISTERS	MEAN									7.1	4.6	6.9	5.3
	SD									2.8	2.4	5.0	3.2
	N									12	12	10	20
BYWATER TWISTER	MEAN							5.4	5.4	4.2	1.8	3.9	3.1
	SD							3.5	3.6	3.2	0.6	1.8	2.0
	N							6	13	12	13	12	13
CHEESE WINDING	MEAN	6.7	3.6	4.9	5.2	10.9	3.7	3.6	5.2	5.6	3.0	5.4	3.7
	SD	2.6	1.1	1.9	1.6	5.3	1.6	1.3	1.9	2.4	0.8	3.7	1.4
	N	8	10	11	10	12	21	37	29	24	20	35	38
PRINCE SMITH DOUBLERS	MEAN	3.6	2.8	4.4	3.6	4.3	2.7	2.9	3.5	3.9	2.3	2.6	4.1
	SD	1.9	0.6	0.9	0.5	1.9	0.9	0.9	2.1	1.4	0.9	1.8	1.8
	N	7	7	6	2	6	13	13	13	12	13	19	18
INTERMEDIATE DOUBLING	MEAN	2.4	3.1	3.8	3.5	2.4	2.9	2.9	4.2	5.4	2.5	3.7	4.1
	SD	1.4	0.7	1.4	0.8	0.2	0.8	0.7	1.9	2.7	0.7	1.6	1.4
	N	7	5	2	2	2	21	31	21	23	22	19	17
DUESBURGH DOUBLERS	MEAN									6.7	3.9	9.4	7.4
	SD									2.9	1.4	5.3	3.2
	N									19	21	56	50
WEBBING LOOMS	MEAN						0.6	0.6	0.8	1.2	0.6	1.0	0.5
	SD						0.3	0.4	0.3	0.8	0.4	0.6	0.2
	N						15	17	13	12	13	9	9
BEAMING HEADSTOCK	MEAN	4.2	6.7	10.7	9.4	11.9	1.9	3.1	2.4	1.7	0.6	0.6	0.7
	SD	1.8	2.7	5.2	7.5	15.8	1.6	1.6	1.7	1.8	0.5	0.2	0.7
	N	7	9	12	9	8	12	20	23	24	22	14	14
LISTING LOOMS	MEAN	2.4	1.2	2.2	0.8	0.5	0.6	0.5	0.8	0.9	0.5	0.7	0.5
	SD	1.1	0.5	0.1	0.2	0.2	0.4	0.3	0.4	0.4	0.1	0.3	0.2
	N	8	5	2	2	2	11	11	13	14	12	6	9
YARN WINDING(WEBBING LOOMS)	MEAN											1.3	1.0
	SD											0.7	0.7
	N											10	8
RADIAL LOOMS	MEAN									0.9	0.6	0.7	0.5
	SD									0.4	0.6	0.3	0.4
	N									11	13	6	10
CLOTH LOOMS	MEAN	4.0	1.6	3.5	2.3	1.8	1.2	1.0	1.4	1.1	0.3	1.8	0.9
	SD	2.3	0.4	2.7	1.4	0.2	0.6	0.3	1.0	0.5	0.4	2.6	0.6
	N	7	6	3	5	3	23	23	29	24	30	25	32

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LOCATION		1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
APRON'L REMINDER	MEAN						7.5	1.7	1.0	0.9	0.5	0.5	0.5
	SD						3.8	1.3	0.5	0.5	0.2	0.3	0.2
	N						9	13	13	13	12	8	8
QUILL WINDING	MEAN									1.1	0.5	0.5	0.5
	SD									0.5	0.6	0.2	0.2
	N									12	13	8	8
TWIN WINDING (CLOTH LOOMS)	MEAN	3.9	2.7	4.1	2.5	1.8	3.6	2.8	1.1	1.7	1.0	1.4	1.3
	SD	2.3	0.9	2.9	0.8	0.9	2.9	1.6	0.9	1.1	0.7	0.6	0.4
	N	9	6	3	3	4	14	17	22	29	22	16	12
DUST SUPPRESSANT PLANT	MEAN										0.9	1.1	0.7
	SD										0.4	0.4	0.3
	N										13	6	6
BBL LOOMS	MEAN									0.9	0.7	1.5	2.2
	SD									0.3	0.4	1.4	2.8
	N									11	15	12	20
WED DRY PLAITING	MEAN	3.9	4.4	6.1	5.4	4.1	4.4	5.2	4.7	5.1	2.4	3.9	3.4
	SD	1.4	1.1	0.3	2.1	0.4	1.9	2.2	2.3	2.0	1.0	1.5	1.6
	N	7	6	3	4	3	12	20	25	24	22	15	19
PLAITING COILER	MEAN												1.7
	SD												0.2
	N												2
LIGHT PLAITING	MEAN						3.5	4.2	4.6	4.8	2.3	4.4	3.1
	SD						2.4	2.2	1.8	2.7	0.6	1.9	1.6
	N						15	19	22	24	22	16	17
ROTARY WASTE MACHINES	MEAN			20.6	5.5	4.8	4.9	4.7	4.3	6.0	2.1	3.4	3.1
	SD			12.6	0.9	3.3	3.9	2.6	2.4	4.6	1.0	1.8	3.2
	N			2	3	6	2	11	11	10	10	10	11
MIRACLE MILL BAGGING	MEAN						9.5	9.8	4.5	5.1	2.8	4.7	3.1
	SD						8.8	6.1	2.2	3.0	2.1	3.4	2.3
	N						13	19	20	21	23	21	11
MIRACLE MILL FEED	MEAN						7.8	6.2	4.1	4.9	2.0	3.2	2.2
	SD						4.9	4.1	2.7	5.5	1.1	1.9	1.9
	N						13	19	20	21	22	21	12
PULVERISOR & CHOPPER BAGGING	MEAN									4.1	2.9	4.0	2.6
	SD									1.6	0.7	2.3	1.2
	N									2	7	13	9
WASTE CHOPPER	MEAN										7.9	2.2	2.8
	SD										5.0	1.1	0.9
	N										9	6	5
PULVERISOR	MEAN									2.0	3.2	2.2	6.7
	SD									0.3	1.6	0.8	1.1
	N									7	9	11	6
NUTTALL CHOPPER	MEAN				7.5	15.1	12.0	15.6	7.4	8.4	16.2		
	SD				4.3	8.9	10.7	14.2	5.9	6.5	11.7		
	N				7	7	13	27	16	10	4		
FIBRE DISPERSING FOR CAP	MEAN						3.6	4.5	5.6	3.9	1.3	1.1	5.7
	SD						2.6	2.9	5.4	2.9	0.8	0.8	4.4
	N						11	13	18	11	11	10	10

03151

UNITED KINGDOM ASBESTOS TEXTILE PLANT

TABLE 2

Typical range of dust counts taken within enclosed area around carding machines to which maintenance workers could have been exposed.

DUST SAMPLE RESULTS (FIBRES/ML) BY LOCATION AND DATE			
4.7.72	7, 15, 13, 7, 2, 5, 11, 14, 5, 3, 2, 3, 5, 15, 3, 3, 5, 5, 28, 6, 9, 5, 6, 6, 6, 6, 6, 9, 6, 6, 2, 4, 5, 4, 5, 7, 7, 27, 5, 3, 4, 3, 2, 2, 2, 36, 6, 3, 3, 2, 2, 1, 3, 2, 7, 2, 1.		
Location:	25/50 Card - Section 8.	Range:	1 - 36
Sampling Method:	Royco	Mean:	= 6 f/ml
25.7.72	10, 10, 8, 10, 8, 4, 7, 8, 6, 6, 6, 6, 9, 11, 11, 8, 8, 10, 10, 9, 11, 16, 13, 16, 7, 9, 8, 12, 11, 11, 15, 17, 19, 26, 26, 38, 12, 13, 20, 11, 10, 6.		
Location:	Single & Tandem (Sect. 8)	Range:	4 - 38
Sampling Method:	Royco	Mean:	= 13 f/ml
17.7.74	8, 8, 10, 10, 7, 9, 7, 6, 5, 2, 14, 14, 9, 5, 3, 10, 14, 9, 6, 2, 4, 3, 2, 2, 2, 4, 4, 4, 4.		
Location:	Carding West 1.	Range:	2 - 14
Sampling Method:	Royco	Mean:	= 7 f/ml
22.4.75	2, 4, 5, 4, 3, 3, 2, 2, 2, 4, 5, 8, 12, 6, 6, 3, 5, 3, 3, 4, 5, 5, 9, 5, 5, 3, 6, 4, 5, 3, 3, 2, 7, 8, 5, 4, 4, 5.		
Location:	West Carding 2 (Single)	Range:	2 - 12
Sampling Method:	Royco	Mean:	= 5 f/ml
15.8.75	35, 12, 8, 15, 4, 3, 6, 2, 3, 7, 5, 3, 4, 3, 7, 6, 3, 4, 3, 3, 3, 2, 1, 3, 2, 3, 10, 3, 6, 9, 15, 1, 1, 18, 10, 5, 11, 14, 8, 8, 3, 4, 6, 8, 2, 4, 9, 4, 9, 7, 1, 3, 4, 6, 8, 5, 7, 5, 5, 9, 1, 1, 2, 2, 1.		
Location:	Carding West 1.	Range:	1 - 35
Sampling Method:	Membrane Filter.	Mean:	= 6 f/ml
19.8.75	6, 11, 4, 5, 7, 4, 7, 1, 4, 4, 9, 5, 3, 2, 7, 4, 3, 7, 10, 9, 3, 4, 10, 5, 11, 11, 14, 8, 21, 1, 4, 4, 4, 4, 4.		
Location:	Carding West 1.	Range:	1 - 21
Sampling Method:	Royco	Mean:	6 f/ml

031152

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UNITED KINGDOM ASBESTOS TEXTILE PLANT
Cumulative exposure relative to asbestosis and cause of death

TABLE 3

Position at 31st December, 1974.

Minimum Estimated Fibre yrs. per ml	Number Exposed	Certified Asbestosis	Total Number of Deaths	Causes of Death			
				Asbestosis and Lung Cancer	Lung Cancer without Asbestosis	Other Cancers	Other Causes
MALES							
0 - 25	11	0	0	-	-	-	-
25 - 50	55	0	3	0	1	0	2
50 - 75	60	2	6	0	1	0	5
75 - 100	35	1	1	0	1	0	0
100 - 125	30	0	2	0	0	1	1
125 - 150	23	1	4	1	0	0	3
150 - 175	15	1	3	1	1	0	1
175 - 200	7	1	0	-	-	-	-
200 - 300	16	4	3	0	0	0	3
Over 300	3	0	0	-	-	-	-
SUB-TOTAL	255	10	22	2	4	1	15
FEMALES							
0 - 25	17	0	0	-	-	-	-
25 - 50	20	0	1	0	0	1	0
50 - 75	21	0	0	-	-	-	-
75 - 100	20	0	0	-	-	-	-
100 - 125	10	0	0	-	-	-	-
125 - 150	4	0	1	0	0	1	0
150 - 175	1	0	0	-	-	-	-
SUB-TOTAL	93	0	2	0	0	2	0
TOTAL OBSERVED	348	10	24	2	4	1	15
TOTAL EXPECTED			28.36	3.2		08453	

All persons exposed for at least 10 years with no exposure prior to

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UNITED KINGDOM - ASBESTOS TEXTILE PLANT TABLE 4.

Years since first exposure relative to asbestosis and cause of death

Position at 31st December, 1974.

Exposure. Year first Exposed	Number Exposed	Certified Asbestosis	Total Number of Deaths	Causes of Death			
				Asbestosis & Lung Cancer	Lung Cancer without Asbestosis	Other Cancers	Other Causes
MALES							
1951	30	1	2	-	-	1	1
1952	27	2	4	1	1	-	2
1953	20	1	1	-	1	-	-
1954	28	2	5	-	1	-	4
1955	25	1	3	-	1	-	2
1956	23	3	3	1	-	-	2
1957	19	-	3	-	-	-	3
1958	18	-	1	-	-	-	1
1959	18	-	-	-	-	-	-
1960	29	-	-	-	-	-	-
1961	10	-	-	-	-	-	-
1962	5	-	-	-	-	-	-
1963	2	-	-	-	-	-	-
1964	-	-	-	-	-	-	-
1965	1	-	-	-	-	-	-
TOTALS	255	10	22	2	4	1	15
FEMALES							
1951	10	-	-	-	-	-	-
1952	8	-	-	-	-	-	-
1953	-	-	-	-	-	-	-
1954	7	-	-	-	-	-	-
1955	12	-	-	-	-	-	-
1956	8	-	-	-	-	-	-
1957	15	-	1	-	-	1	-
1958	8	-	-	-	-	-	-
1959	6	-	1	-	-	1	-
1960	8	-	-	-	-	-	-
1961	6	-	-	-	-	-	-
1962	6	-	-	-	-	-	-
1963	-	-	-	-	-	-	-
1964	1	-	-	-	-	-	-
1965	-	-	-	-	-	-	-
TOTALS	93	-	2	-	-	2	-

All persons exposed for at least 10 ...

UNITED KINGDOM - ASBESTOS TEXTILE PLANT — TABLE 5

Years since first exposure and cumulative exposure in fibre year per ml.

Position at 31st December, 1974

Year first Exposed	Cumulative exposure in fibre years per millilitre. 0 to 25	25 to 50	50 to 75	75 to 100	100 to 125	125 to 150	150 to 175	175 to 200	200 to 300	300 +
MALES (255)										
1951 (30)	-	-	5	3	4	6	5	2	4	1
1952 (27)	-	3	5	4	5	2	4	1	2	1
1953 (20)	-	6	3	3	4	2	0	-	2	-
1954 (28)	1	5	4	3	6	3	1	1	4	-
1955 (25)	2	8	4	2	2	3	0	-	3	1
1956 (23)	0	6	7	3	1	2	2	1	1	-
1957 (19)	-	4	6	3	3	-	1	1	1	-
1958 (18)	-	5	4	4	2	2	1	-	-	-
1959 (18)	1	4	9	3	0	-	1	-	-	-
1960 (29)	4	8	9	4	2	1	-	1	-	-
1961 (10)	2	2	3	1	0	2	-	-	-	-
1962 (5)	-	4	1	-	-	-	-	-	-	-
1963 (2)	1	-	-	1	-	-	-	-	-	-
1964 (0)	-	-	-	-	-	-	-	-	-	-
1965 (1)	-	-	-	1	-	-	-	-	-	-
TOTALS	11	55	60	35	29	23	15	7	17	3
FEMALES (93)										
1951 (10)	-	2	-	4	3	1	-	-	-	-
1952 (8)	1	-	-	2	3	2	-	-	-	-
1953 (0)	-	-	-	-	-	-	-	-	-	-
1954 (7)	2	1	1	2	1	-	-	-	-	-
1955 (12)	4	4	1	2	1	-	-	-	-	-
1956 (8)	3	-	1	3	1	-	-	-	-	-
1957 (13)	5	6	3	-	1	-	-	-	-	-
1958 (8)	1	1	3	2	-	-	1	-	-	-
1959 (6)	-	1	3	1	-	1	-	-	-	-
1960 (8)	-	1	5	2	-	-	-	-	-	-
1961 (4)	1	-	2	1	-	-	-	-	-	-
1962 (6)	-	3	2	1	-	-	-	-	-	-
1963 (0)	-	-	-	-	-	-	-	-	-	-
1964 (1)	-	1	-	-	-	-	-	-	-	-
1965 (0)	-	-	-	-	-	-	-	-	-	-
TOTALS	17	20	21	20	10	4	1	-	-	-

03155

Persons exposed for at least 10 years with no exposure prior to

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UNITED KINGDOM - ASBESTOS TEXTILE PLANT TABLE 6

Position at 31st December, 1974

6A. Distribution of cohort in relation to cumulative exposure

	Cumulative exposure in Fibre years/ml.				
	<100	>100	>200	>300	Totals
Males	161	74	17	3	255
Females	78	15	-	-	93

6B. Asbestosis cases in cohort relative to cumulative exposure.

	Cumlative exposure in Fibre years/ml .				
	<100	>100	>200	>300	Totals
Males					
Asbestosis	3	3	4	-	10
Healthy	158	71	13	3	245
Totals	161	74	17	3	255
Females					
Asbestosis	-	-	-	-	-
Healthy	78	15	-	-	93
Totals	78	15	-	-	93

Persons exposed for at least 10 years with no exposure prior to 1st January, 1951.

03156

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UNITED KINGDOM - ASBESTOS TEXTILE PLANT

TABLE 7

Exposure history of asbestosis cases.

Position at 31st December, 1974.

Certified Asbestosis Cases		
	Exposure	
Cohort Number	Year First Exposed	Cumulative Fibre Years per ml.
4340	1951	213.30
4336	1952	193.09
4140	1952	81.47
4159	1953	217.96
4265 *	1954	157.24
4323	1954	280.50
4330	1955	278.39
4008	1956	139.67
4346	1956	66.10
4373	1956	66.49

Total group exposure - 1694.21

Mean group exposure - 169.4 fibre years/ml.

Mean exposure time - 14.04 years

Range - 9.66 - 18.08

Persons exposed for at least 10 years with no exposure prior to 1st January, 1951.

*The person referred to under cohort number 4265 was engaged in shipbuilding or repair between 1925 and 1930 and could have had associated exposure to asbestos dust in this occupation.

03157

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UNITED KINGDOM ASBESTOS TEXTILES PLANT — TABLE 8

Exposure history of lung cancer deaths.

Position at 31st December, 1974

Cohort No.	Year first Exposed	Time from Exposure to death	Exposure Period	Minimum Estimated Exposure Fibre Years ml.	Year of death	Age at death	Smoking Habits
4032	1952	14.42 yrs.	14.12 yrs.	161.32	1967	58	10 cigs/ day
4044	1952	20.42 yrs.	10.83 yrs.	43.64	1972	71	20/30 cigs/day
4416	1953	20.25 yrs.	18.40 yrs.	84.48	1974	48	20/30 cigs/day
4265 *	1954	17.00 yrs.	11.34 yrs.	157.24	1971	60	30 cigs/ day
4090	1955	17.42 yrs.	16.83 yrs.	64.06	1972	66	20 cigs/ day
4008	1956	17.50 yrs.	11.42 yrs.	139.67	1974	59	15/20 cigs/day

Persons exposed for at least 10 years with no exposure prior to 1st January, 1951.

*The person referred to under cohort number 4265 was engaged in shipbuilding or repair between 1925 and 1930 and could have had associated exposure to asbestos dust in this occupation.

03158

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UNITED KINGDOM - ASBESTOS TEXTILE PLANT — TABLE 9

Weaving Department. Years since first exposure and sumulative exposure of workers exposed to low levels of asbestos dust.

Position at 31st December, 1974.

Year first Exposed	Cumulative exposure in fibre years per millilitre. 0 to 25	25 to 50	50 to 75	75 to 100	100 to 125	125 to 150	150 to 175	175 to 200	200 to 300	300 +
MALES (43)										
1951 (2)	-	-	2	-	-	-	-	-	-	-
1952 (5)	-	1	4	-	-	-	-	-	-	-
1953 (4)	-	3	1	-	-	-	-	-	-	-
1954 (3)	1	2	1	-	-	-	-	-	-	-
1955 (8)	2	5	1	-	-	-	-	-	-	-
1956 (3)	-	3	1	-	-	-	-	-	-	-
1957 (2)	-	2	1	-	-	-	-	-	-	-
1958 (1)	-	1	-	-	-	-	-	-	-	-
1959 (1)	1	-	-	-	-	-	-	-	-	-
1960 (6)	3	4	-	-	-	-	-	-	-	-
1961 (3)	2	1	-	-	-	-	-	-	-	-
1962 (0)	-	-	-	-	-	-	-	-	-	-
1963 (1)	1	-	-	-	-	-	-	-	-	-
1964 (0)	-	-	-	-	-	-	-	-	-	-
1965 (0)	-	-	-	-	-	-	-	-	-	-
TOTALS	10	22	11	0	0	0	0	0	0	0
FEMALES (15)										
1951 (2)	-	2	-	-	-	-	-	-	-	-
1952 (1)	1	-	-	-	-	-	-	-	-	-
1953 (0)	-	-	-	-	-	-	-	-	-	-
1954 (2)	2	-	-	-	-	-	-	-	-	-
1955 (4)	4	-	-	-	-	-	-	-	-	-
1956 (3)	3	-	-	-	-	-	-	-	-	-
1957 (2)	2	-	-	-	-	-	-	-	-	-
1958 (0)	-	-	-	-	-	-	-	-	-	-
1959 (0)	-	-	-	-	-	-	-	-	-	-
1960 (0)	-	-	-	-	-	-	-	-	-	-
1961 (1)	1	-	-	-	-	-	-	-	-	-
1962 (0)	-	-	-	-	-	-	-	-	-	-
1963 (0)	-	-	-	-	-	-	-	-	-	-
1964 (0)	-	-	-	-	-	-	-	-	-	-
1965 (0)	-	-	-	-	-	-	-	-	-	-
TOTALS	13	2	0	0	0	0	0	0	0	0

03159

Persons exposed for at least 10 years with no exposure after [illegible]

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UNITED KINGDOM - ASBESTOS TEXTILE PLANT TABLE 10

History of workers with consistently low level of exposure to asbestos dust

Position at 31st December, 1974.

Weaving Department

MALES

Cumulative exposure in fibre years/ml.	No. Exposed
0 - 25	10
25 - 50	22
50 - 75	11
75 - 100	-
100 - 125	-
125 - 150	-
150 - 175	-
175 - 200	-
200 - 300	-
Over 300	-
Total	43

Amongst male workers there have been no cases of asbestosis and only two deaths both of which were unrelated to asbestos exposure.

FEMALES

Cumulative exposure in fibre years/ml	No. Exposed
	13
25 - 50	2
50 - 75	-
75 - 100	--
100 - 125	-
125 - 150	-
150 - 175	-
175 - 200	-
200 - 300	-
Over 300	-
Total	15

Amongst female workers there have been no cases of asbestosis, neither have there been any deaths.

03169

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