PLAINTIFF'S EXHIBIT

GP-696

AIRBORNE ASBESTOS SURVEY
AKRON JOINT CEMENT PLANT

October 23, 1975

Date: 1-20-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 13C

ELAPSED TIME (t) Unknown mins.

FLOW RATE _____ l/min

VOLUME (V) Unknown liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 2.6 fibers/field

0	1	—	—	1	—
	1	—	—	—	—
	—	—	—	—	—
	—	—	—	—	1
	1	—	—	—	—
	—	—	—	—	—
5	—	—	—	—	—
	—	—	—	—	—
	1	1	—	—	—
	—	—	—	—	—
	—	—	—	1	—
	—	1	1	2	—
10	—	—	—	●	—
	—	—	1	—	—
	—	—	—	—	—
	—	—	1	—	1
15	—	—	—	—	—
	—	—	—	2	1
	—	—	—	—	—
	—	1	—	—	—
20	—	—	—	—	—
SUBTOTALS	5	3	3	6	3

TOTAL 20

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{\ }$

Void Time on not known.

SGP 0020991

Date: 1-22-76

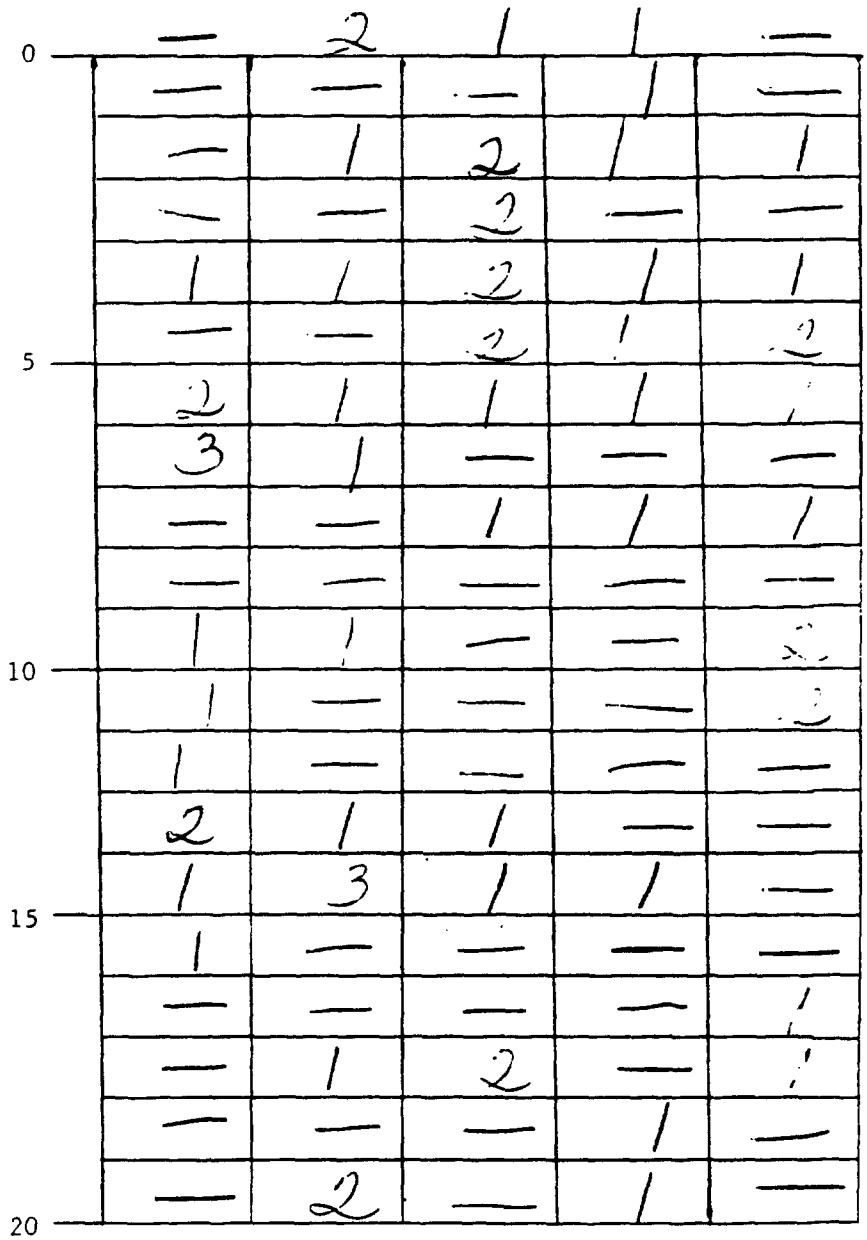
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 135 — ELAPSED TIME (t) 59 mins.

FLOW RATE 1.5 l/min — VOLUME (V) 155 liters

FIELD AREA (a) .00432 mm^2 — BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) .64 fibers/field



SUBTOTALS

TOTAL 64

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.64)}{155} = 1.98$

Date: _____

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 221 ELAPSED TIME (t) 15 mins.

FLOW RATE 1.5 l/min VOLUME (V) 27 liters

FIELD AREA (a) .0432 mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .36 fibers/field

0	2	—	—	—	—
	—	—	—	—	—
	—	—	—	1	—
	1	1	—	1	1
	—	—	—	—	—
	1	—	1	1	1
5	1	2	—	—	—
	—	—	—	1	1
	1	—	—	—	2
	1	—	—	—	—
	1	—	2	—	—
10	—	—	—	—	1
	1	1	—	—	—
	—	—	—	—	—
	—	1	—	1	—
15	—	—	—	—	—
	1	—	—	1	—
	—	1	—	—	—
	—	1	1	1	—
20	—	1	—	1	—
SUBTOTALS	10	8	4	8	6

TOTAL 36

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{188(.36)}{27} = 2.61$

Date: 12/15/25

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 216 | ELAPSED TIME (t) 69 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 124 liters

FIELD AREA (a) .0031 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) 0.73 fibers/field

	—	—	—	1	2
0	2	1	1	—	—
	—	1	—	—	—
	1	—	2	—	1
	1	1	1	1	—
	—	1	3	—	2
5	2	—	1	2	1
	—	1	—	1	3
	1	—	1	1	1
	—	—	—	—	1
	—	1	—	1	2
10	3	—	—	1	1
	—	—	1	2	1
	1	—	—	—	—
	3	—	—	—	1
15	1	—	—	—	1
	1	—	—	—	1
	—	2	—	1	3
	1	2	—	—	1
20	1	—	1	1	—
SUBTOTALS	18	10	11	12	22

TOTAL 73

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (.73)}{124} = 1.17$

Date: _____

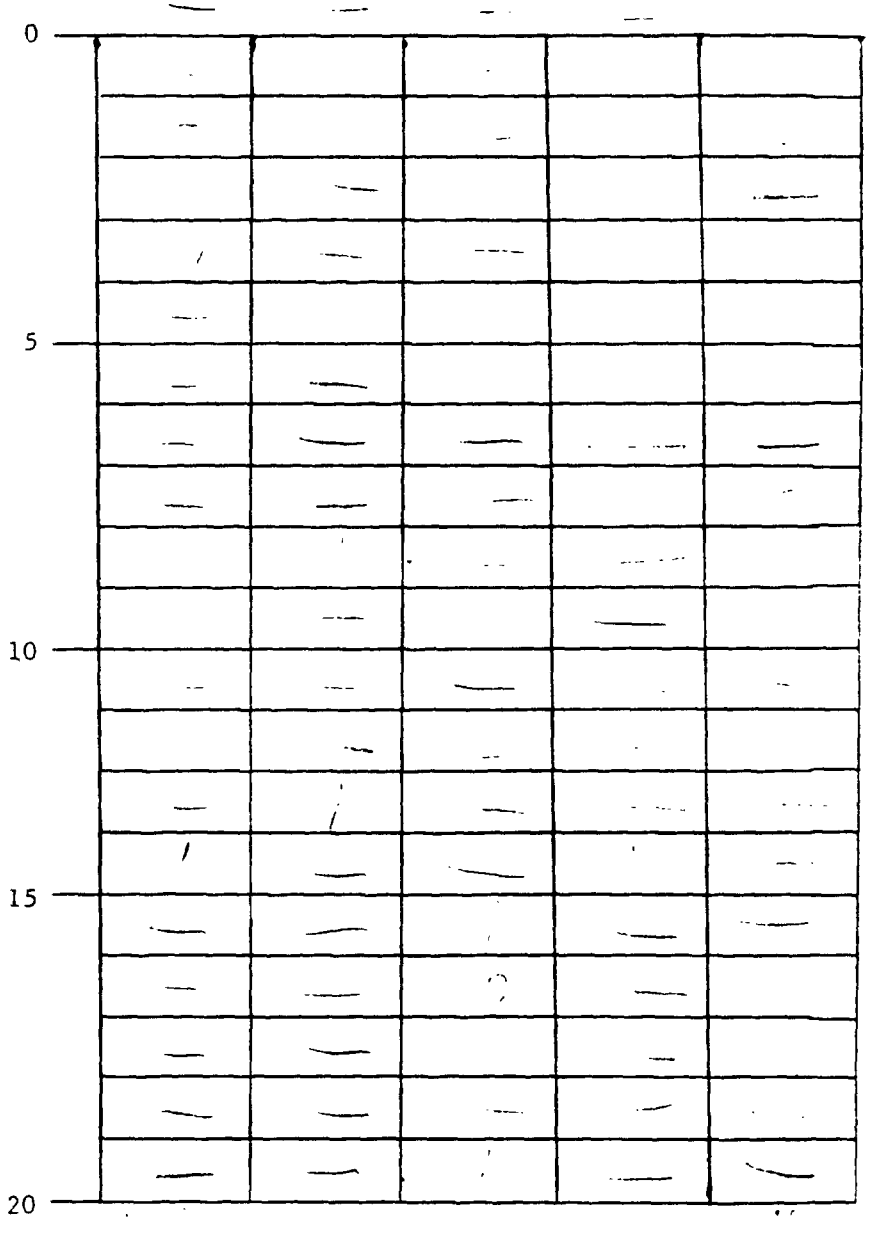
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) 178 mins.

FLOW RATE 1.8 l/min VOLUME (V) 320 liters

FIELD AREA (a) _____ mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .32 fibers/field



SUBTOTALS TOTAL _____

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.32)}{320} = .20$

Date: 1-13-76

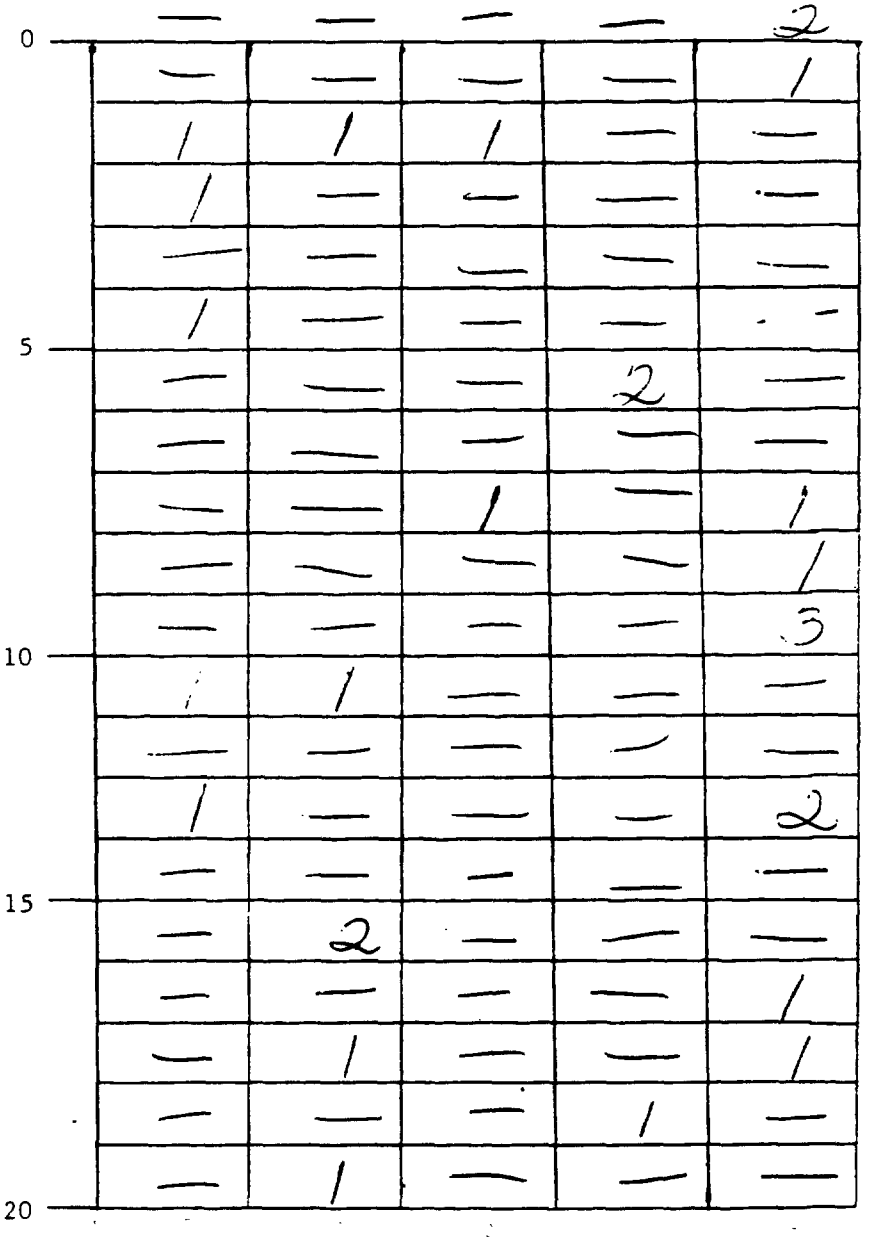
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 223 ELAPSED TIME (t) 31 mins.

FLOW RATE 1.8 l/min VOLUME (V) 55.8 liters

FIELD AREA (a) ~~22~~ 0.432 mm^2 BLANK COUNT (b) - fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .28 fibers/field



SUBTOTALS TOTAL 28

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.28)}{55.8} = .99$

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Clarence Blueye

Title Packer - Stacker

Date 10/23/75

Pump Serial No. B-08-0490

Sampled by

Signature

LOCATION	Packer & Section	—	—	—	—	—				
FILTER NO.	136	142	209	211	222	219				
FLOW: Pump Setting	6	6	6	6	6	6				
Liter/min (R)	1.7	1.7	1.7	1.7	1.7	1.7				
TIME: On	7:13	8:40	10:40	1:06	2:35	2:50				
Off	8:40	10:40	1:06	2:35	2:50	3:25				
ELAPSED TIME (min) (t)		120	116	89		35				
VOLUME, Liters (t x r)	148	204	197	151	25.5	59.5				
REMARKS			Pumps 86 30 min Lunch							
CONCENTRATION (F) fibers/ml	.58	.41	.41	.59	.78	1.76				

Total Sample Time (T) 462 mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ 2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(87 \times .58) + (120 \times .41) + (116 \times .41) + (89 \times .59) + (15 \times .78) + (35 \times 1.76)}{462}$$

$$= \frac{50.5 + 49.2 + 47.6 + 48 + 52.5 + 11.7 + 61}{462} = \frac{320.5}{462} = .69$$

Date: 1-16-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 142

ELAPSED TIME (t) 120 mins.

FLOW RATE _____ l/min

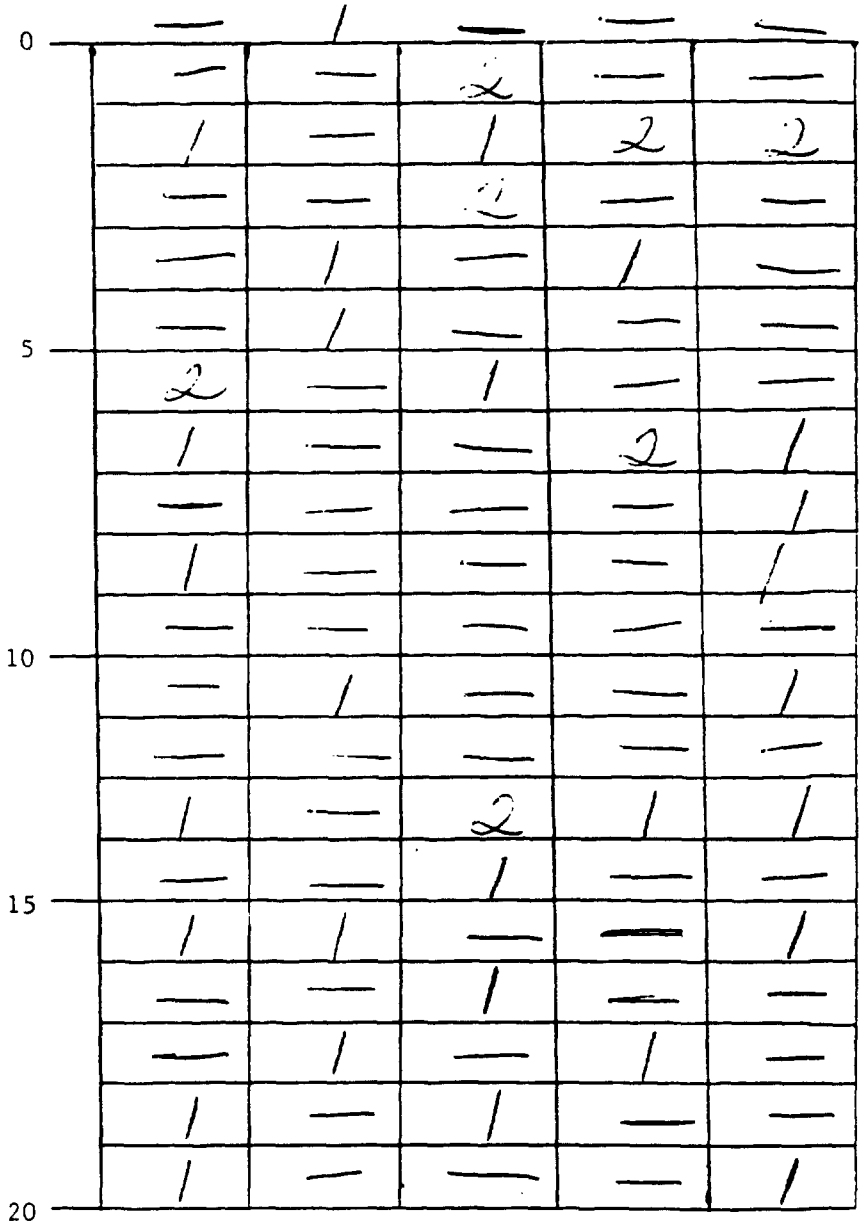
VOLUME (V) 204 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .42 fibers/field



SUBTOTALS

TOTAL 42

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.42}{204} = .41$

Date: 1-23-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 136

ELAPSED TIME (t) 57 mins.

FLOW RATE _____ l/min

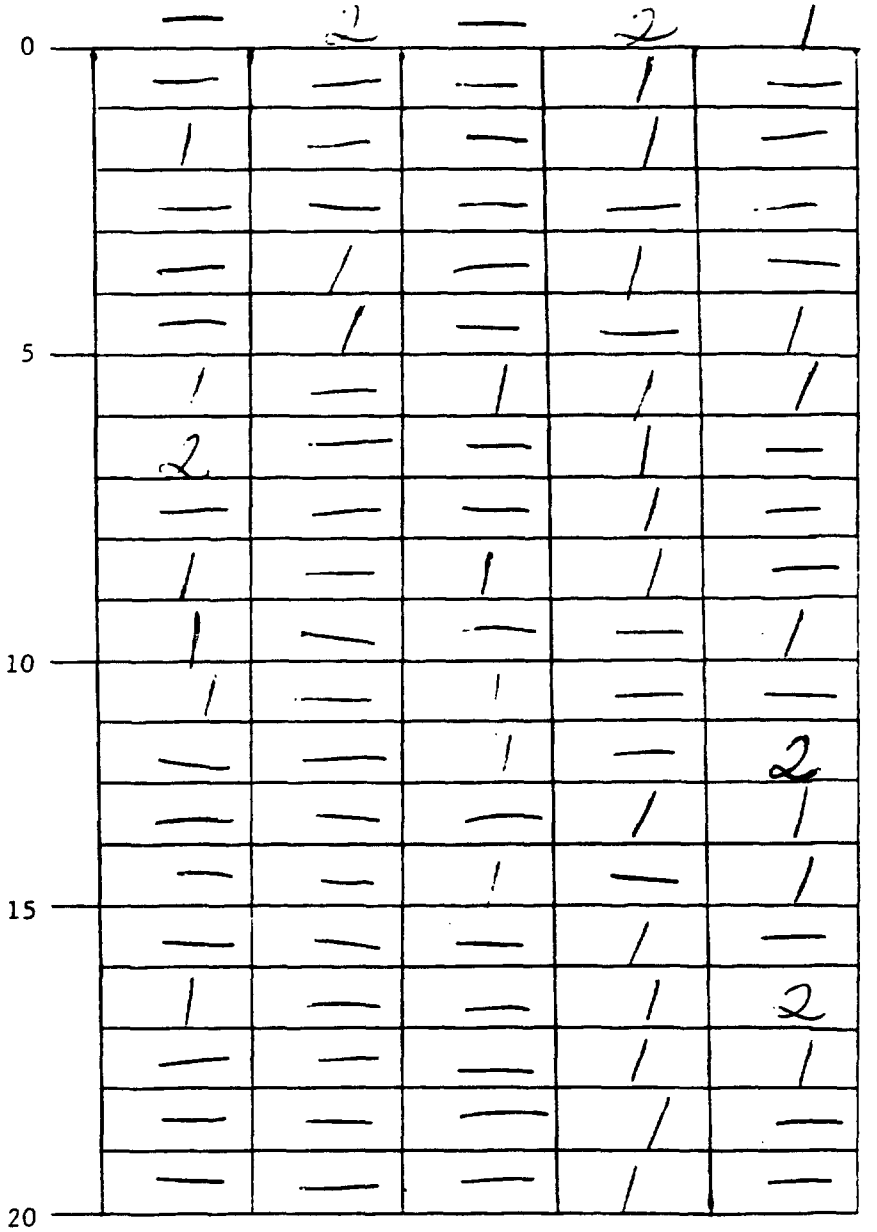
VOLUME (V) 148 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .43 fibers/field



SUBTOTALS

TOTAL 43

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{(98)(.43)}{148} = .58$

Date: 12/9/25

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 222

ELAPSED TIME (t) 15 mins.

FLOW RATE _____ l/min

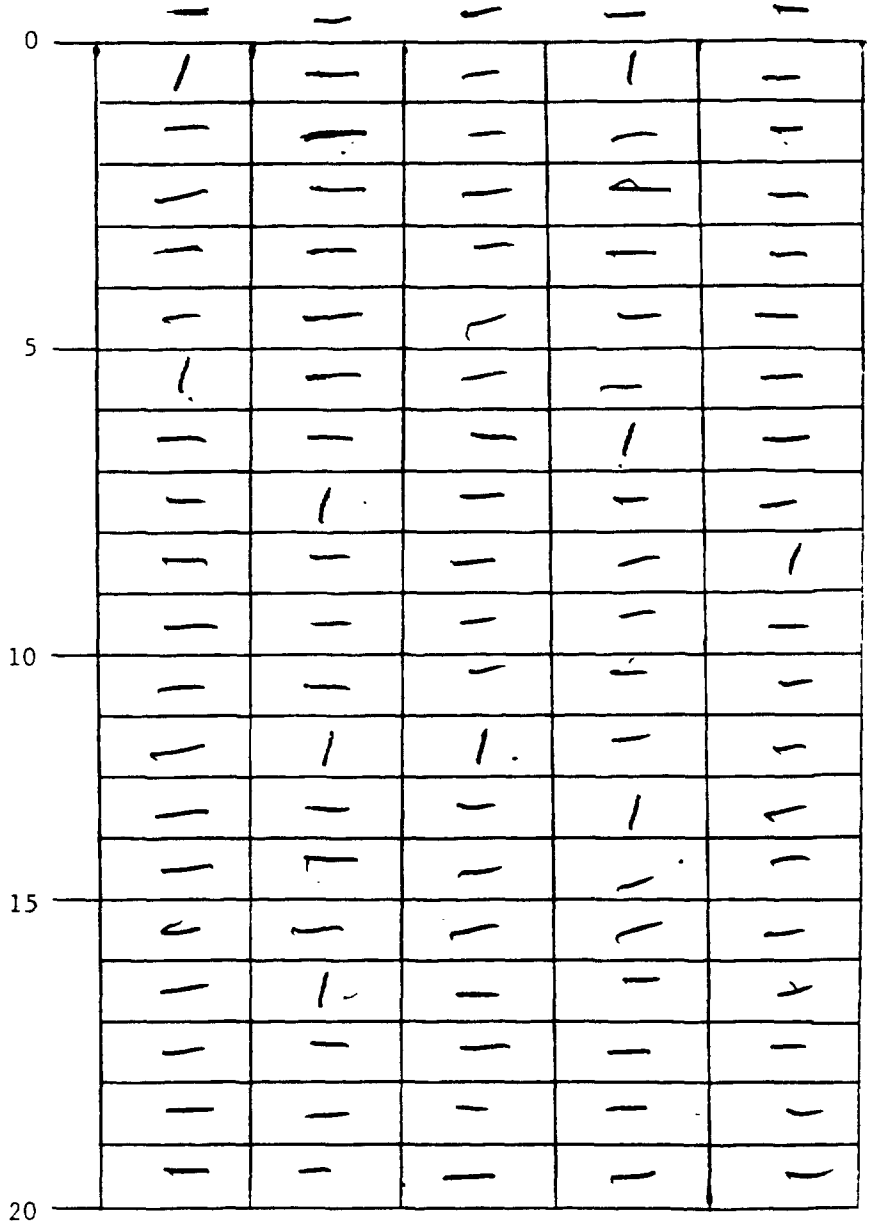
VOLUME (V) 25.5 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 0.10 fibers/field



SUBTOTALS

TOTAL 10

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.10)}{25.5} = .78$

Date: 12/10/21

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 209

ELAPSED TIME (t) ~~11/10/21~~ 116 mins.

FLOW RATE _____ l/min

VOLUME (V) 197 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 41 fibers/field

0	—	—	—	—	—
	—	1	1	—	1
	—	—	1	—	—
	—	1	—	—	—
	—	1	—	1	2
	—	2	2	—	—
5	3	2	3	—	—
	—	—	—	—	1
	—	—	—	—	—
	—	—	—	—	—
	1	1	1	1	—
10	—	—	—	—	—
	—	1	—	1	1
	—	1	—	—	—
	1	—	—	—	—
15	—	1	2	—	—
	1	—	—	—	—
	—	1	—	1	1
	—	—	—	—	—
20	—	1	2	—	—
SUBTOTALS	6	13	12	4	6

TOTAL 41

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{197(.41)}{197} = .41$

SGP 0021001

Date: 12/15/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 219

ELAPSED TIME (t) 35 mins.

FLOW RATE 1.7 l/min

VOLUME (V) 59.5 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .53 fibers/field

0	1	—	—	2	—
	⌐	1	—	—	—
	—	⌐	2	1	1
	1	⌐	—	—	—
	1	1	1	1	1
5	1	1	1	—	—
	1	⌐	1	—	—
	2	—	—	—	—
	1	—	—	1	5
	2	—	—	—	—
10	—	—	—	1	1
	—	—	—	1	—
	—	1	1	1	—
	—	—	—	1	—
15	2	1	1	—	—
	—	1	—	—	—
	—	1	2	1	—
	—	1	2	1	—
20	—	—	1	2	—
SUBTOTALS	12	8	12	13	8

6

TOTAL 53

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.53)}{59.5} = 1.76$

SGP 0021002

Date: 12/8/95

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 212

ELAPSED TIME (t) 17 mins.

FLOW RATE 1.8 ~~1.75~~ l/min

VOLUME (V) 30.6 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .43 fibers/field

0	1	1	—	—	—
	1	—	—	1	—
	—	1	1	1	—
	—	—	—	2	1
	—	—	—	1	—
	1	—	—	—	—
5	—	1	—	—	—
	—	1	1	—	—
	2	1	1	1	—
	—	1	—	—	1
	2	—	1	1	—
10	2	—	—	1	—
	—	1	—	—	—
	—	—	1	—	—
	—	1	—	—	1
15	—	—	—	1	—
	—	—	—	1	—
	—	1	2	1	1
	—	—	—	—	2
20	—	—	—	—	1
SUBTOTALS	9	9	7	11	7

TOTAL 43

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.43)}{30.6} = 2.78$

SGP 0021003

Date: 1-12-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 211

ELAPSED TIME (t) 30 mins.

FLOW RATE 1.7 l/min

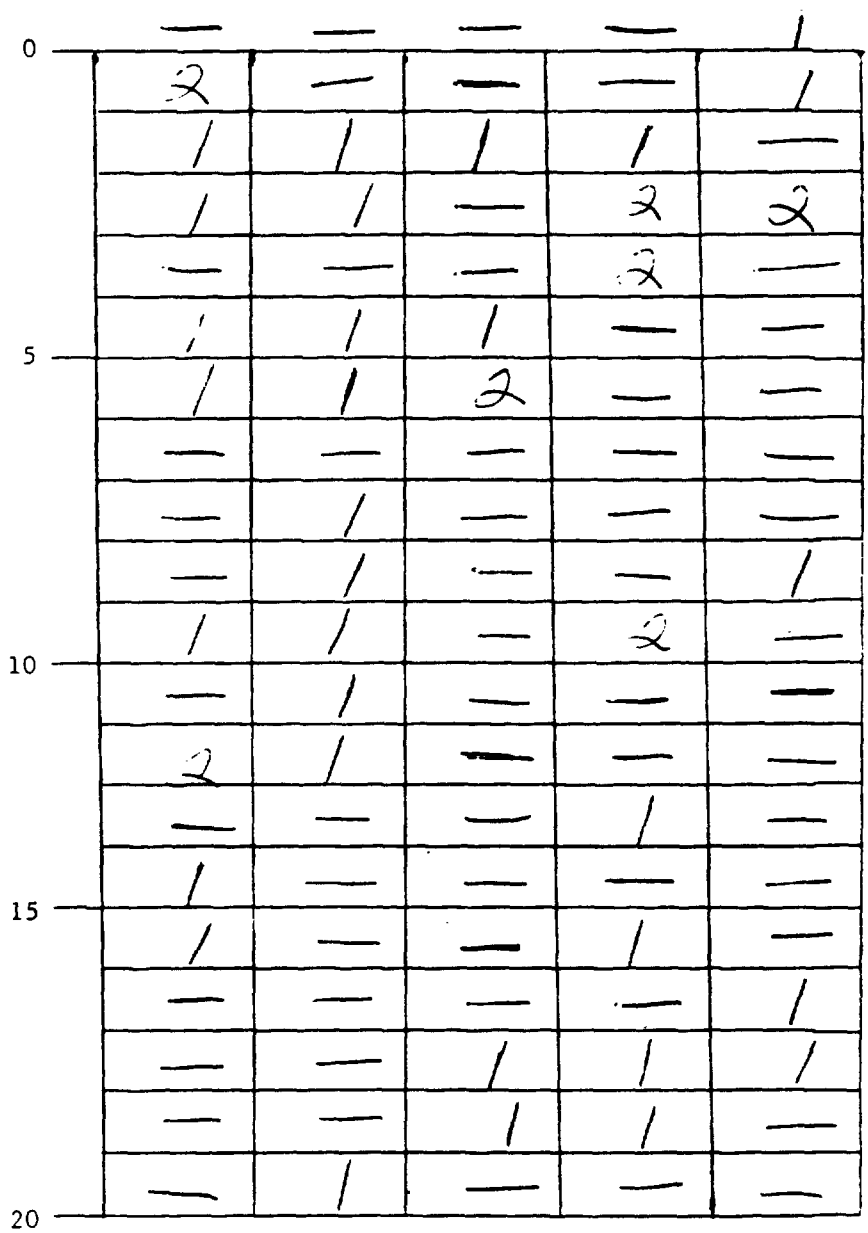
VOLUME (V) 151 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 45 fibers/field



SUBTOTALS

TOTAL 45

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.45)}{151} = .59$

SGP 0021004

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Al Kenworth

Title Ready Mix Mixer

Date 10/23/75

Pump Serial No. B06-0288

Sampled by [redacted]

Signature

LOCATION	Ready mix mixer	—	—	—	—					
FILTER NO.	143	137	201	210	217					
FLOW: Pump Setting	6	6	6	6	6					
Liter/min (R)	1.7	1.7	1.7	1.7	1.7					
TIME: On	7:08	8:45	9:55	1:13	1:30					
Off	8:45	9:55	1:13	1:30	3:25					
ELAPSED TIME (min) (t)	97	70	168	17	115					
VOLUME, Liters (t x r)	165	119	256	29	196					
REMARKS			≈30 min Pumps off for Lunch							
CONCENTRATION (F) fibers/ml	.70	.40	.62	3.00	.63					

Total Sample Time (T) 467 mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(165 \times .70) + (119 \times .40) + (168 \times .62) + (17 \times 3) + (115 \times .63)}{467}$$

$$= \frac{115.5 + 47.6 + 104.2 + 51 + 72.5}{467} = \frac{390.8}{467} = \boxed{.84}$$

SGP 0021005

Date: 1-15-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 143 — ELAPSED TIME (t) 47 mins.

FLOW RATE 1.7 l/min — VOLUME (V) 165 liters

FIELD AREA (a) .0043c mm^2 — BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) .58 fibers/field

0	1	—	—	1	1
	—	1	—	1	—
	—	1	—	—	—
	1	1	—	—	—
	1	—	—	—	—
5	—	1	—	1	1
	1	—	1	—	1
	1	1	1	2	—
	—	—	—	3	—
	—	1	—	—	1
10	1	1	—	—	1
	—	—	—	—	—
	1	—	1	2	1
	1	—	1	1	1
15	—	2	1	—	2
	1	1	1	—	1
	2	1	1	1	1
	—	—	2	—	—
	—	—	1	1	—
20	1	—	—	1	—
SUBTOTALS					TOTAL 58

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198(.58)}{165} = .70$

SGP 0021006

Date: 1-3-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 2/1

ELAPSED TIME (t) 17 mins.

FLOW RATE 1.7 l/min

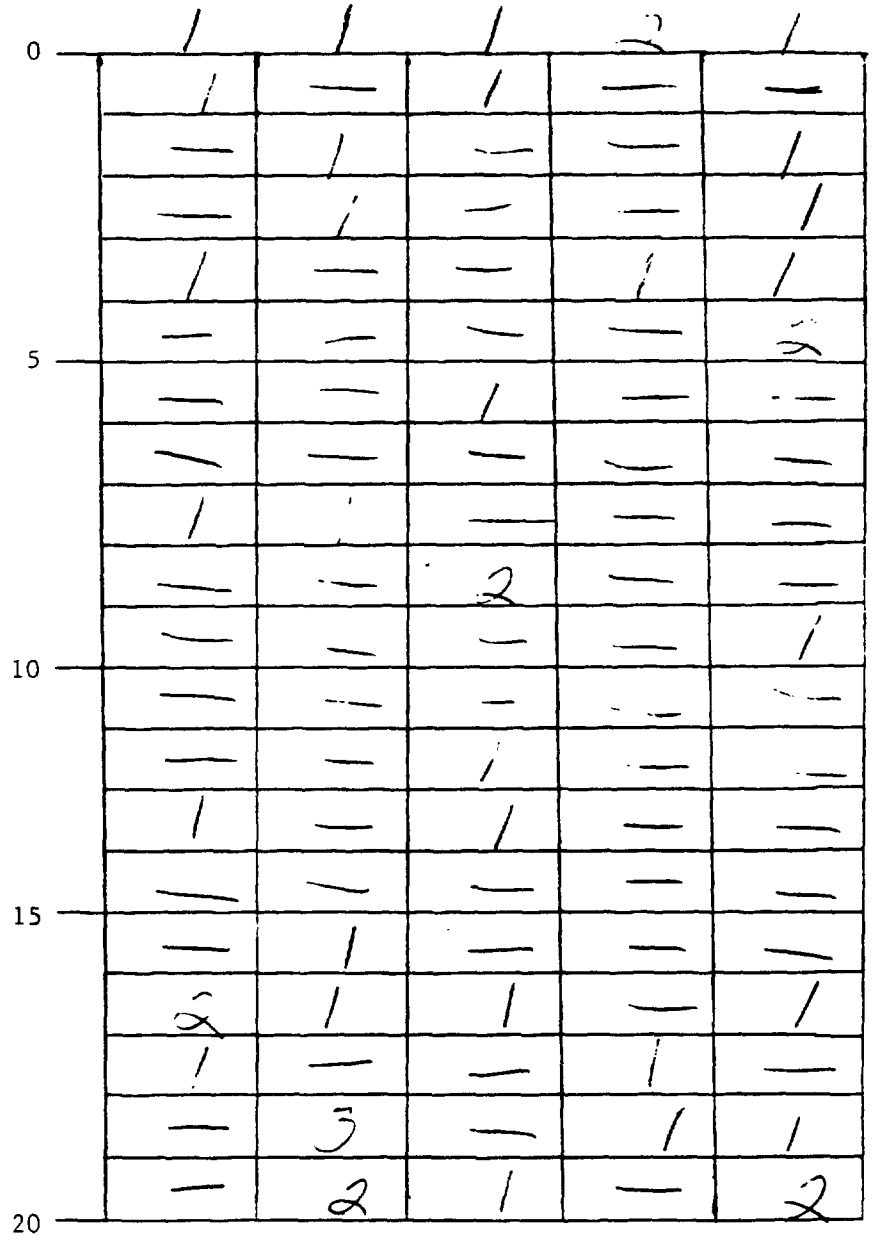
VOLUME (V) 29 liters

FIELD AREA (a) .0432 mm^2

BLANK COUNT (b) - fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .44 fibers/field



SUBTOTALS

TOTAL 44

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{193\ (.44)}{29} = 3.00$

SGP 0021007

Date: 12/23/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 17

ELAPSED TIME (t) 115 mins.

FLOW RATE 1.7 l/min

VOLUME (V) 196 liters

FIELD AREA (a) .0432 mm^2

BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .62 fibers/field

	3	—	1	1	—
0	—	1	2	1	1
	—	3	1	1	—
	1	—	—	1	1
	1	—	1	—	1
	2	—	2	—	1
5	1	—	1	—	1
	1	—	—	—	—
	—	—	—	—	—
	1	1	1	—	—
	—	—	1	1	1
10	—	—	—	1	—
	1	—	1	1	1
	—	—	2	1	—
	—	1	—	1	—
15	—	1	—	—	—
	—	1	1	1	2
	—	1	—	—	1
	—	1	1	1	—
20	1	1	2	—	1
SUBTOTALS	12	11	17	11	11

TOTAL 62

3
2
6 2

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.62)}{196} = .63$

SGP 0021008

Date: 5-16-95

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 21

ELAPSED TIME (t) 168 mins.

FLOW RATE 1.7 l/min

VOLUME (V) 286 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .90 fibers/field

0	1	1	—	—	1
	1	—	—	—	—
	—	1	—	—	1
	1	1	—	2	—
	1	1	1	—	—
	—	1	—	—	—
5	1	3	2	3	1
	2	1	—	3	—
	—	2	—	—	—
	3	—	—	3	—
	1	—	—	1	—
10	2	2	2	3	1
	1	1	2	2	1
	2	—	1	—	2
	1	—	1	1	2
15	3	2	1	—	—
	1	—	—	—	1
	—	2	1	—	5
	1	1	—	—	2
20	1	—	—	2	—

SUBTOTALS TOTAL 90

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.90)}{286} = .62$

SGP 0021009

Date: 12/9/93

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 137

ELAPSED TIME (t) 70 mins.

FLOW RATE 1.7 l/min

VOLUME (V) 119 liters

FIELD AREA (a) .0043 mm^2

BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) fibers/field

0	—	—	—	—	—
	—	—	—	1	—
	1	—	1	—	1
	—	—	—	—	—
	—	—	—	—	—
	—	1	1	1	—
5	—	—	—	1	—
	—	—	4	—	—
	2	—	—	—	—
	1	—	—	—	1
	—	—	—	1	—
10	—	—	—	—	—
	—	—	—	—	—
	—	—	—	1	—
	—	—	—	—	1
15	—	—	—	—	—
	1	—	1	—	—
	1	—	1	—	—
	1	—	—	—	—
20	—	—	—	—	—
SUBTOTALS	7	1	8	5	3

TOTAL 24

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$

$\frac{198\ (.24)}{119} = .40$

SGP 0021010

AIRBORNE ASBESTOS FIBER SAMPLING

Plant Akron

Date 10/23/75

Name Charlie Jackson

Pump Serial No. B-06-0444

Title Dry Blender

Sampled by

Signature

LOCATION	Dry Blender area	—	—	—	—	—	—			
FILTER NO.	138	131	141	204	205	207	214			
FLOW: Pump Setting	6	6	6	6	6	6	6			
Liter/min (R)	1.75	1.75	1.75	1.75	1.75	1.75	1.75			
TIME: On	7:05	8:00	8:47	9:57	10:48	11:03	1:01			
Off	8:00	8:47	9:57	10:48	11:03	1:01	3:24			
ELAPSED TIME (min) (t)	55	47	70	51	15	103	143			
VOLUME, Liters (t x r)	96	82	123	89	26	180	250			
REMARKS					Dumped Asbestos During this Sample	30 min Pumps off lunch				
CONCENTRATION (F) fibers/ml	.43	.85	.47	.29	1.29	Void *	1.57			

Total Sample Time (T) ~~484~~ ~~466~~ 381 mins.

* note: Filter damage during sampling could not take count.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2F_2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(55\times.43)+(47\times.85)+(70\times.47)+(51\times.29)+(15\times1.29)+(143\times1.57)}{381}$$

$$= \frac{23.7 + 40.0 + 32.9 + 14.8 + 19.4 + 224.5}{381} = \boxed{.93}$$

Counted 332

SGP 0021011

Date: -75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____

ELAPSED TIME (t) 51 mins.

FLOW RATE 1.75 l/min

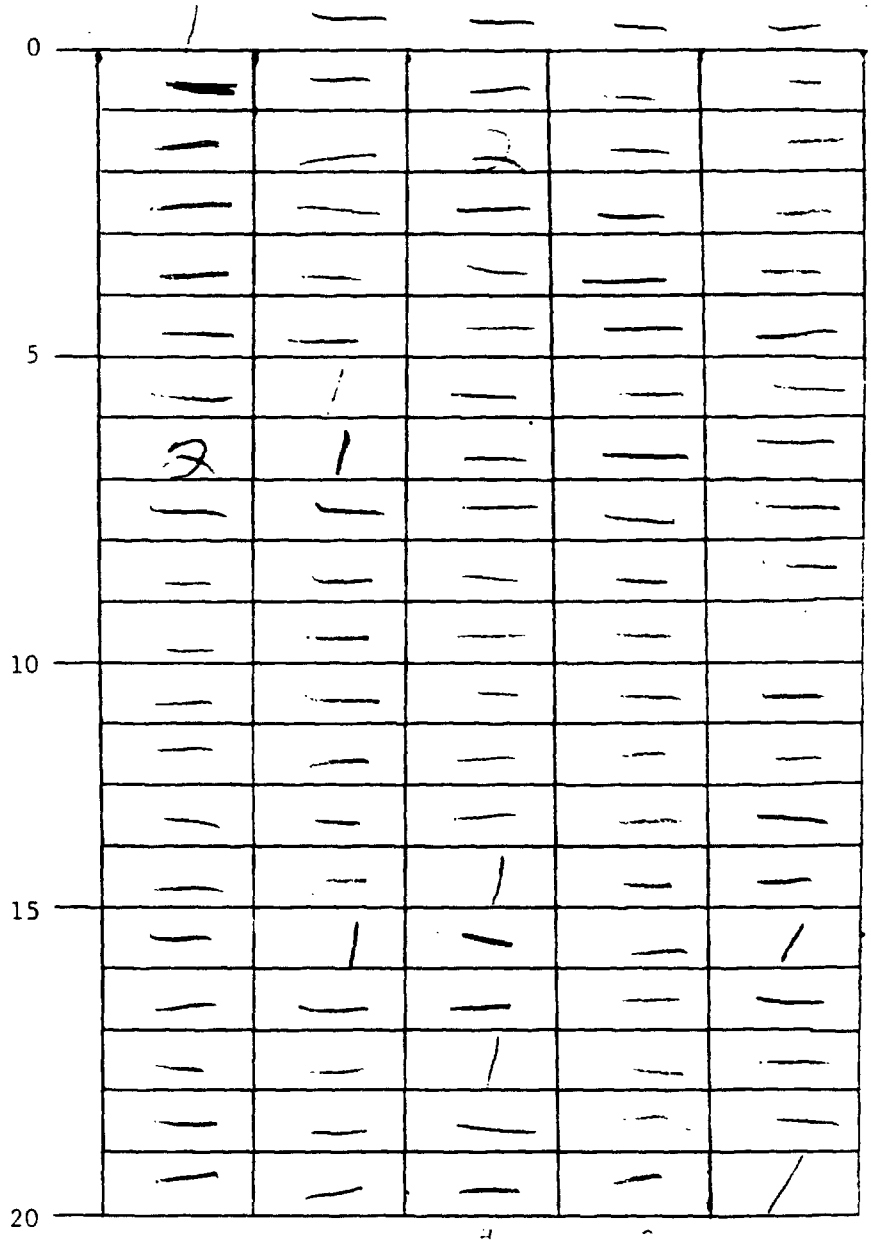
VOLUME (V) 89 liters

FIELD AREA (a) .0436 mm^2

BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .13 fibers/field



SUBTOTALS

TOTAL 13

Constant k = $\frac{A}{1000\ a}$ = 198

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ = $198\ \frac{(.13)}{89}$ = .29

SGP 0021012

Date: 12-12-95

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____

ELAPSED TIME (t) 15 mins.

FLOW RATE 1.75 l/min

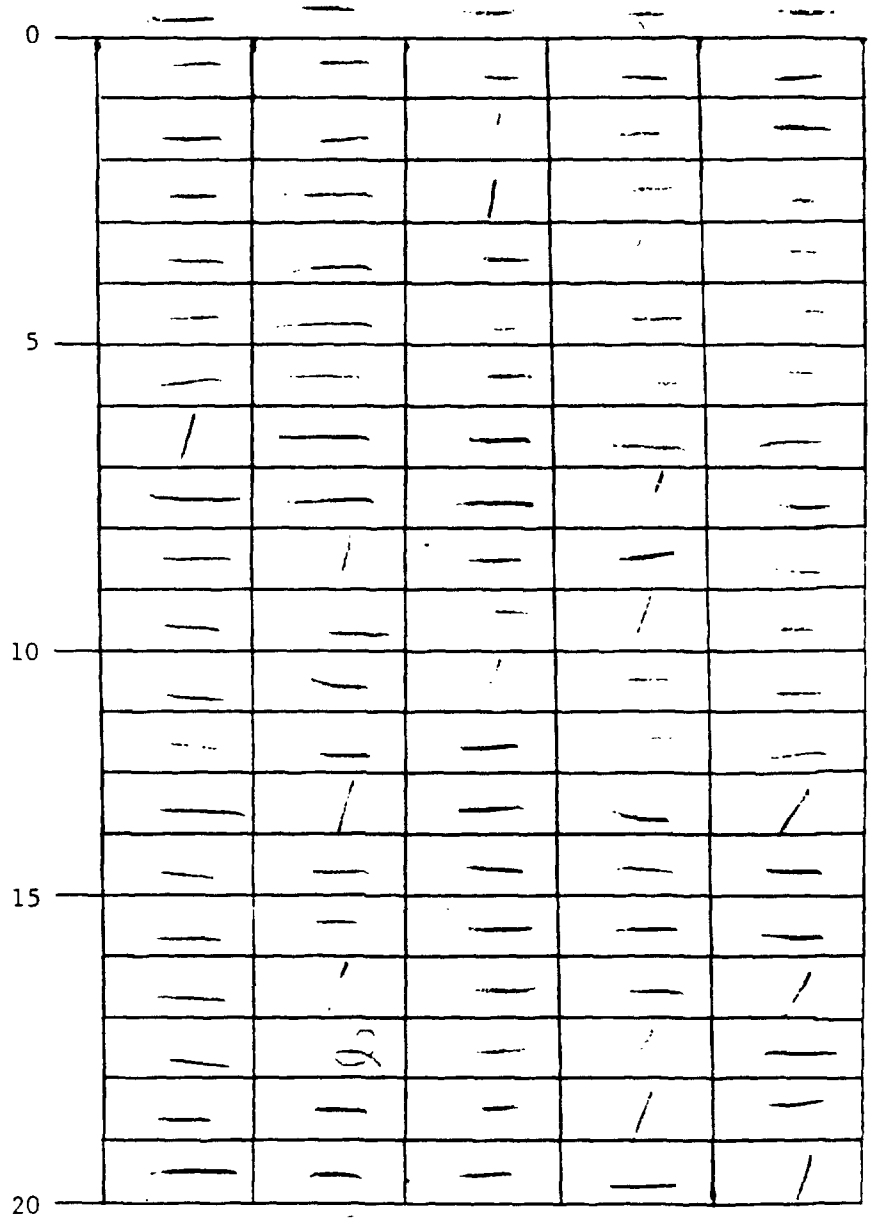
VOLUME (V) 26 liters

FIELD AREA (a) .0243 mm^2

BLANK COUNT (b) – fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .17 fibers/field



SUBTOTALS

TOTAL 17

Constant $k = \frac{A}{1000\ a} = 198$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.17)}{26} = 1.29$

SGP 0021013

Date: _____

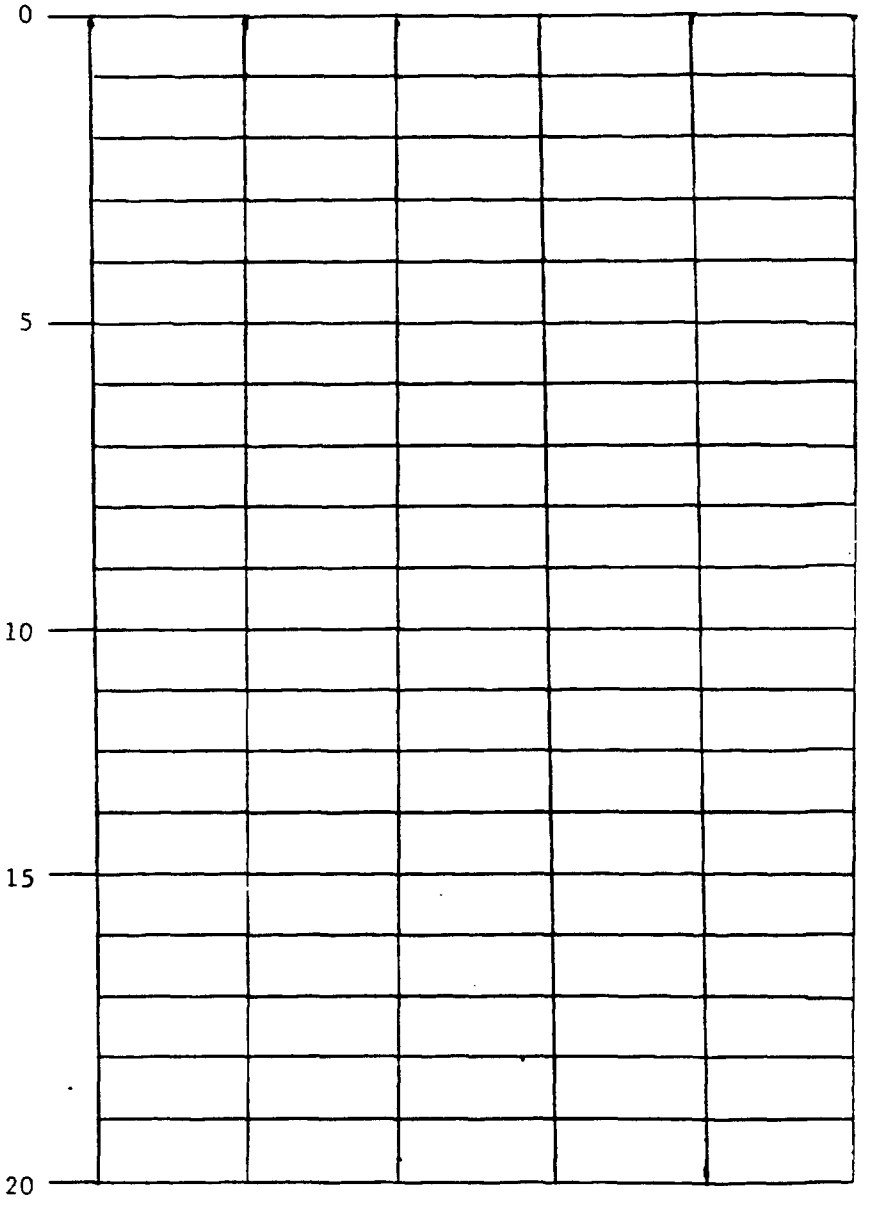
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____ ELAPSED TIME (t) _____ mins.

FLOW RATE _____ l/min VOLUME (V) _____ liters

FIELD AREA (a) _____ mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) _____ fibers/field



SUBTOTALS TOTAL _____

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$

Date: _____

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____

ELAPSED TIME (t) 55 mins.

FLOW RATE 1.75 l/min

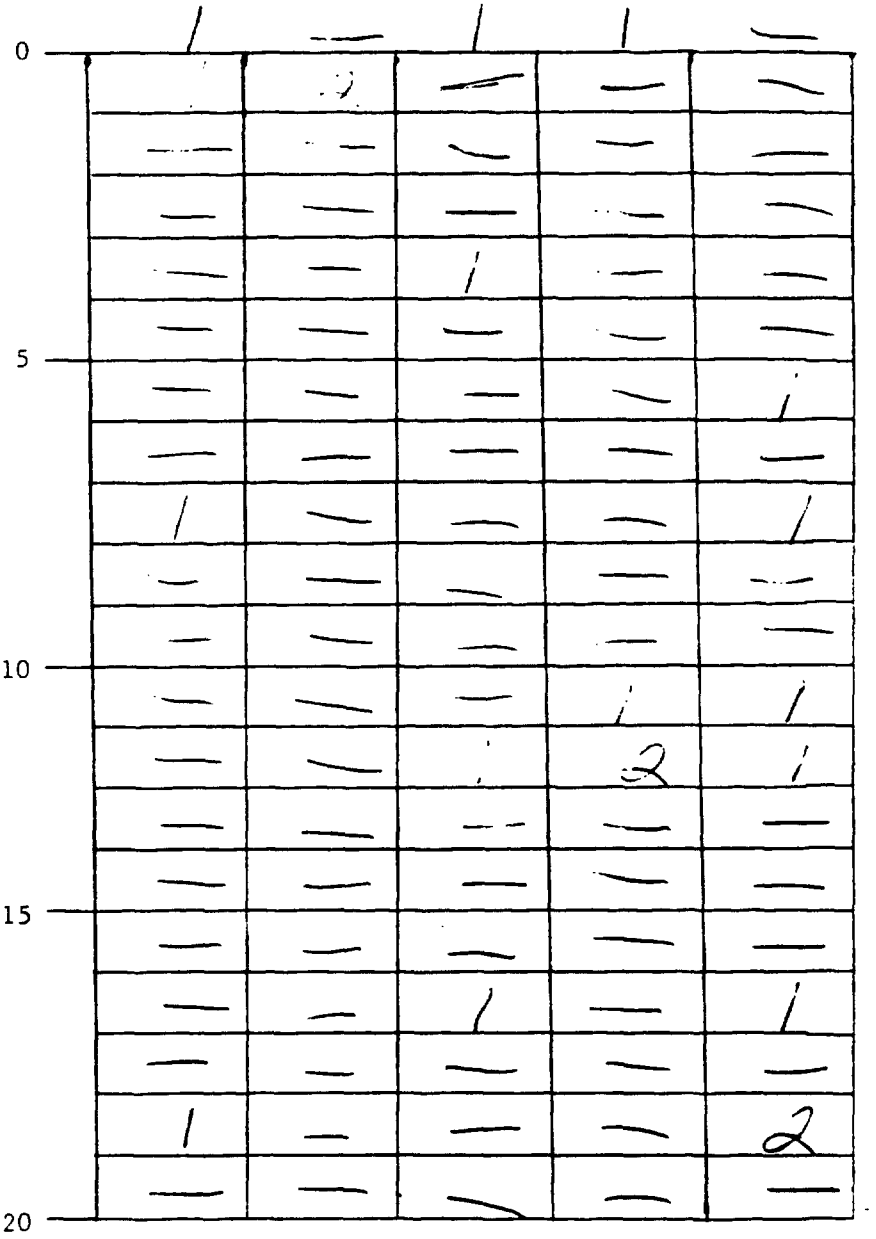
VOLUME (V) 96 liters

FIELD AREA (a) .0432 mm^2

BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .21 fibers/field



SUBTOTALS

TOTAL 21

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198\ (.21)}{96} = .43$

SGP 0021015

Date: 1-22-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 131

ELAPSED TIME (t) 47 mins.

FLOW RATE 1.75 l/min

VOLUME (V) ~~125~~ 82 liters

FIELD AREA (a) 0.432 mm^2

BLANK COUNT (b) - fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .35 fibers/field

0	1	—	—	—	—
	—	—	—	1	3
	—	1	—	—	—
	—	—	1	1	—
	—	—	—	4	—
	—	—	—	1	—
5	1	1	—	—	—
	—	—	1	—	—
	—	1	1	1	—
	—	1	—	—	1
	—	—	1	—	—
10	—	—	—	1	—
	—	—	—	1	—
	1	—	—	2	—
	—	—	—	1	—
15	—	1	—	—	—
	2	—	—	1	—
	—	1	—	—	—
	2	—	—	—	—
20	—	—	—	—	—

SUBTOTALS

TOTAL 3.5

Constant $k = \frac{A}{1000\ a} = 1.98$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{1.98(.35)}{82} = .85$

SGP 0021016

Date: 1-23-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 141

ELAPSED TIME (t) 70 mins.

FLOW RATE 1.75 l/min

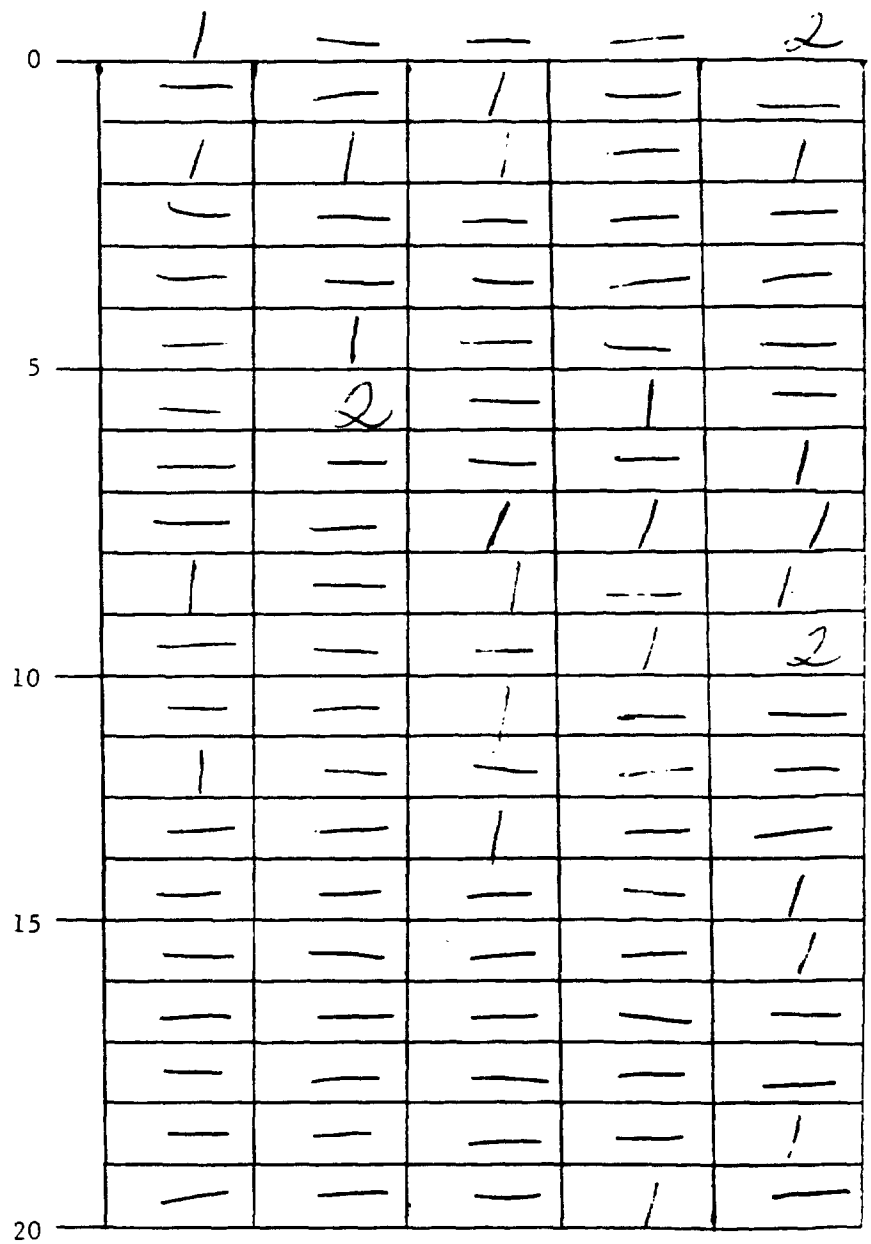
VOLUME (V) 123 liters

FIELD AREA (a) .0432 mm^2

BLANK COUNT (b) - fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .29 fibers/field



SUBTOTALS

TOTAL 29

Constant k = $\frac{A}{1000\ a}$ = 198

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ $\frac{(198)(.29)}{123}$ = 1.47

SGP 0021017

Date: 12/8/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 214 | ELAPSED TIME (t) 143 mins.

FLOW RATE 1.75 l/min | VOLUME (V) 250 liters

FIELD AREA (a) ~.432 mm^2 | BLANK COUNT (b) — fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) 1.98 fibers/field

	i	4	—		
0	2	3	1		
	2	—	—		
	2	4	—		
	—	2	1		
	1	2	2		
5	1	1	2		
	2	1	5		
	4	1	1		
	3	3	—		
	—	3	1		
10	1	2	3		
	1	1	1		
	—	6	1		
	1	1	—		
15	1	2	1		
	4	2	1		
	1	3	1		
	2	1	2		
20	—	1	1		
SUBTOTALS	32	43	24		TOTAL 119

1.98
60)119
460
590
540
500
90
30

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (1.98)}{250} = 1.57$

SGP 0021018

AIRBORNE ASBESTOS FIBER SAMPLING

Plant Akron

Name Bob Krantz

Title Dry Blend helper & Fork Truck Driver

Date 10/23/75

Pump Serial No. K-74-0799

Sampled by

Signature

LOCATION	Dry Blend area	—	—	—	—	—				
FILTER NO.	139	203	206	213	220	231				
FLOW: Pump Setting	6	6	6	6	6	6				
Liter/min (R)	1.9	1.9	1.9	1.9	1.9	1.9				
TIME: On	7:20	9.55	10:48	1:03	2:44	2:59				
Off	9:55	10:48	1:03	2:44	2:59	3:28				
ELAPSED TIME (min) (t)	155	53	105	101	15	29				
VOLUME, Liters (t x r)	295	101	200	192	29	55				
REMARKS			Pumps off for 30 min Lunch							
CONCENTRATION (F) fibers/ml	.46	.41	.43	1.96	1.78	1.55				

Total Sample Time (T) _____ mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ 2) + (t_3F_3) + \ldots}{T}$$

$$= \frac{(155 \times .46) + (53 \times .41) + (105 \times .43) + (101 \times 1.96) + (15 \times 1.78) + (29 \times 1.55)}{458}$$

$$= \frac{71.3 + 21.7 + 45.1 + 198 + 26.7 + 45.0}{458}$$

$$= \frac{407.8}{458} = \boxed{.89}$$

SGP 0021019

Date: _____

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 213 | ELAPSED TIME (t) 101 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 192 liters

FIELD AREA (a) .0243 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) 1.90 fibers/field

	2	1	3		
0	1	5	2		
	3	2	2		
	3	2	1		
	1	—	1		
	3	1	2		
5	1	—	3		
	3	2	3		
	1	3	2		
	2	1	1		
	3	4	1		
10	2	1	2		
	4	—	2		
	1	1	1		
	—	2	3		
15	2	4	2		
	2	—	—		
	5	2	4		
	1	2	2		
	—	2	2		
20					
SUBTOTALS	40	35	39		

39
35
40
114

19
60 | 1 14
60
540

TOTAL 114

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (1.9)}{192} = 1.96$

SGP 0021020

Date: 12/10/25

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 231

ELAPSED TIME (t) 29 mins.

FLOW RATE 1.9 l/min

VOLUME (V) 55 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .34 fibers/field

0	1	—	—	—	—
	—	—	—	—	—
	—	—	—	2	—
	—	1	1	—	2
	1	1	1	—	1
5	—	—	1	—	—
	—	1	—	3	—
	—	1	2	—	—
	—	—	1	2	—
	—	—	1	1	—
10	—	—	—	—	—
	1	—	—	1	—
	—	—	—	—	—
	—	—	—	—	—
	—	1	—	—	—
15	—	—	—	—	—
	1	—	—	2	—
	—	—	1	—	1
	1	—	1	—	—
20	—	—	—	—	—
SUBTOTALS	5	5	9	11	4

TOTAL 34

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.43}{55} = 1.5$

SGP 0021021

Date: 12-12-75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____

ELAPSED TIME (t) 53 mins.

FLOW RATE 1.9 l/min

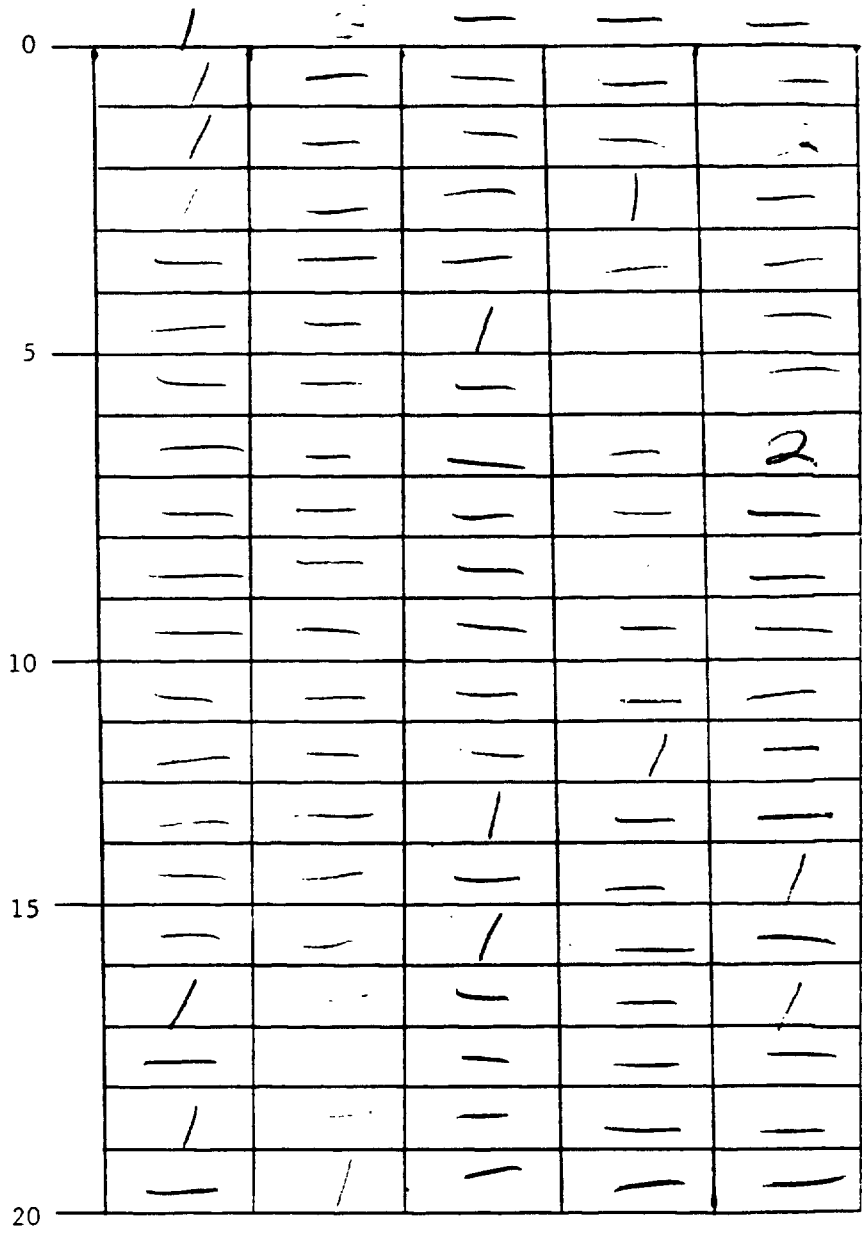
VOLUME (V) 101 liters

FIELD AREA (a) .0432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) 21 fibers/field



SUBTOTALS

TOTAL 101

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198(.21)}{101} = .41$

SGP 0021022

Date: _____

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____

ELAPSED TIME (t) 105 mins.

FLOW RATE 1.9 l/min

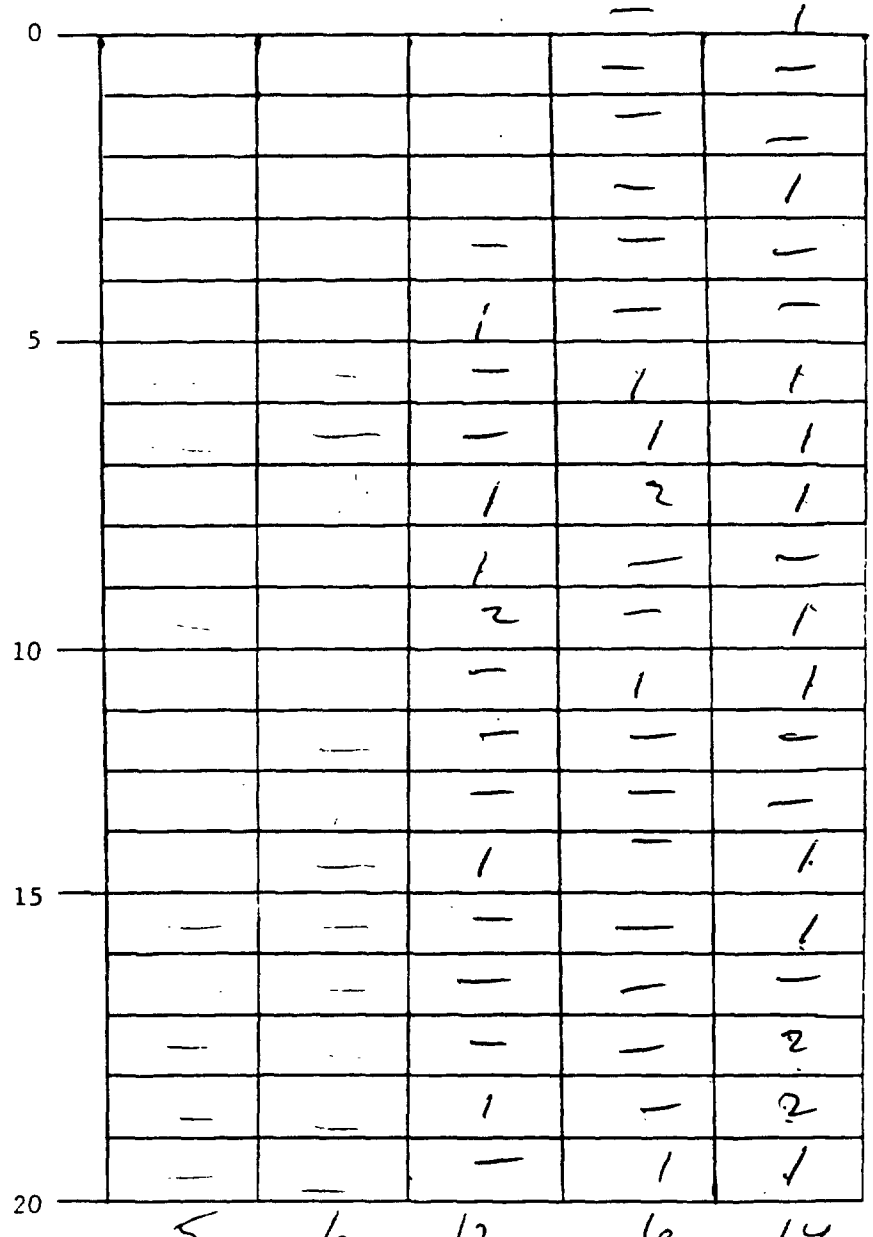
VOLUME (V) 200 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .43 fibers/field



SUBTOTALS	5	6	12	6	14	TOTAL 43

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198\ (.43)}{200} = .43$

SGP 0021023

Date: 1-13-76

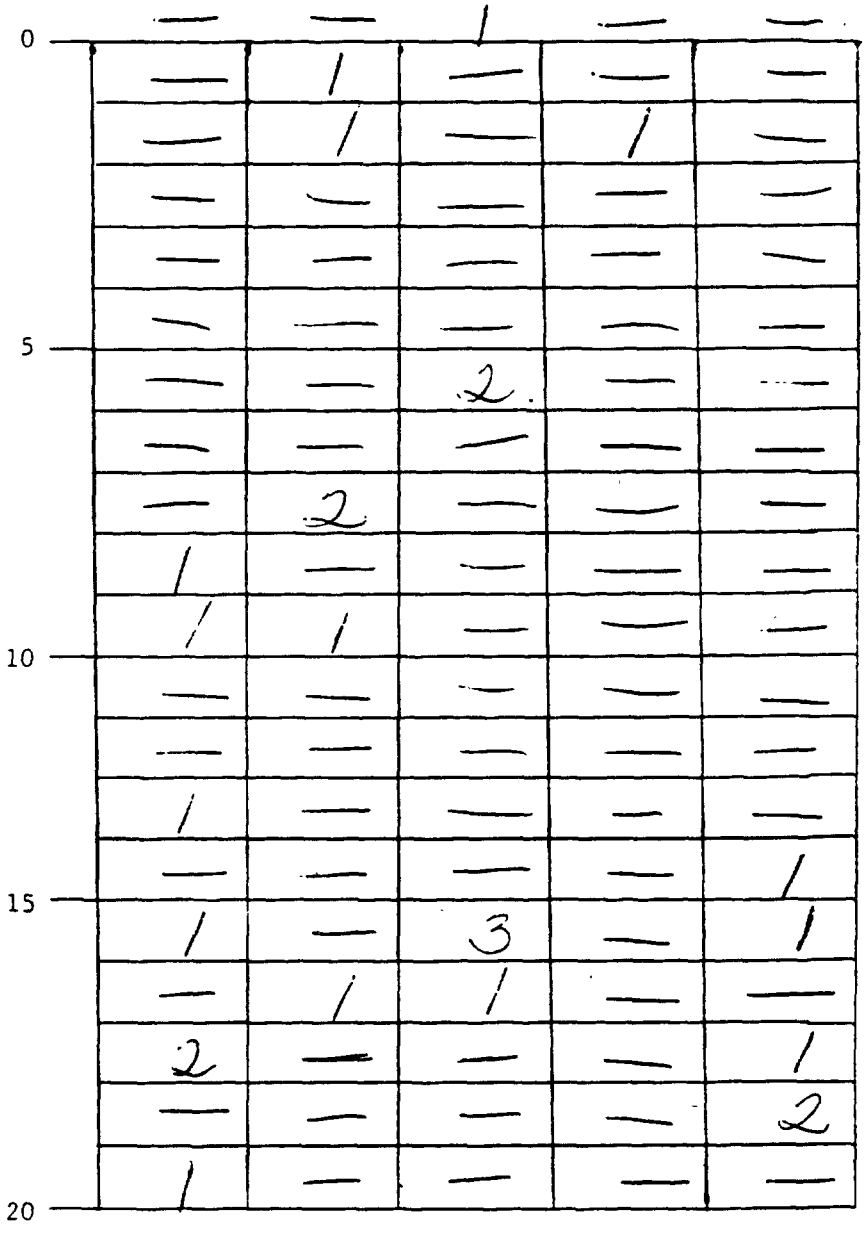
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 220 — ELAPSED TIME (t) 15 mins.

FLOW RATE 1.9 l/min — VOLUME (V) 29 liters

FIELD AREA (a) .0432 mm^2 — BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) .26 fibers/field



SUBTOTALS — TOTAL 26

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (.26)}{29} = 1.78$

Date: 1-14-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 129 | ELAPSED TIME (t) 155 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 295 liters

FIELD AREA (a) .00432 mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .69 fibers/field

0	2	2	—	1	—
	—	—	1	—	2
	—	1	3	—	1
	1	—	2	2	—
	1	—	3	—	—
	—	3	—	—	—
5	1	2	2	—	—
	1	1	2	—	3
	1	—	—	—	—
	2	—	—	1	—
	—	—	1	—	—
10	—	1	2	—	—
	2	—	1	—	2
	—	—	2	1	2
	—	—	—	—	—
15	1	1	2	—	—
	1	—	—	—	1
	—	1	1	2	—
	—	—	2	—	—
20	—	—	1	1	—

SUBTOTALS

TOTAL 9

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{145(.69)}{295} = .46$

SGP 0021025

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Area Samples

Title

Date 10/23/75

Pump Serial No. B-06-0422

Sampled by

Signature

LOCATION	OA1 Blend area	—	Ready Mix area	Warehouse	Packer
FILTER NO.	144	J02	208	J15	218
FLOW: Pump Setting	6	6	6	6	6
Liter/min (R)	1.7	1.7	1.7	1.7	1.7
TIME: On	7:22	9:26	10:45	1:20	2:30
Off	9:26	10:45	1:20	2:20	3:30
ELAPSED TIME (min) (t)	124	79	155	60	60
VOLUME, Liters (t x r)	211	134	264	102	102
REMARKS					
CONCENTRATION (F) fibers/ml	.35	.38	.32	.14	1.11

Total Sample Time (T) _____ mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

RECEIVED

OCT

SGP 0021026

Date: 12-17-75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. [illegible]

ELAPSED TIME (t) 79 mins.

FLOW RATE 1.7 l/min

VOLUME (V) 134 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .26 fibers/field

0		—	—	1	—
	2	—	—	—	—
	2	—	1	—	—
	1	—	1	—	—
	2	1	—	—	—
	—	1	—	—	—
5	1	—	—	—	1
	—	—	—	—	—
	—	—	—	—	—
	—	—	—	—	—
	—	—	—	—	—
10	—	—	1	—	—
	—	—	—	—	—
	—	—	—	—	1
	—	—	2	1	—
	—	—	—	—	—
15	—	1	—	—	1
	—	—	—	1	1
	1	—	1	—	—
	—	1	—	—	—
20	—	—	—	—	—
SUBTOTALS	7	4	7	2	4

TOTAL 26

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198 \times .26}{134} = .38$

SGP 0021027

Date: 12/15/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 208

ELAPSED TIME (t) 155 mins.

FLOW RATE 1.7 l/min

VOLUME (V) 264 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .42 fibers/field

0	1	—	—	—	—
	—	—	1	1	2
	—	—	1	—	2
	—	1	1	—	—
	1	—	1	—	1
	—	—	—	—	—
5	1	—	—	1	—
	—	—	1	—	—
	—	—	—	—	1
	—	—	—	1	1
	—	—	—	—	—
10	1	—	—	—	—
	2	—	—	—	—
	—	—	—	—	1
	—	1	1	—	—
15	1	2	1	1	—
	—	—	1	1	—
	—	1	1	—	1
	—	—	2	—	—
20	1	—	1	1	3
SUBTOTALS	9	5	12	6	12

TOTAL 42

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198\ (.42)}{264} = 32$

SGP 0021028

Date: _____

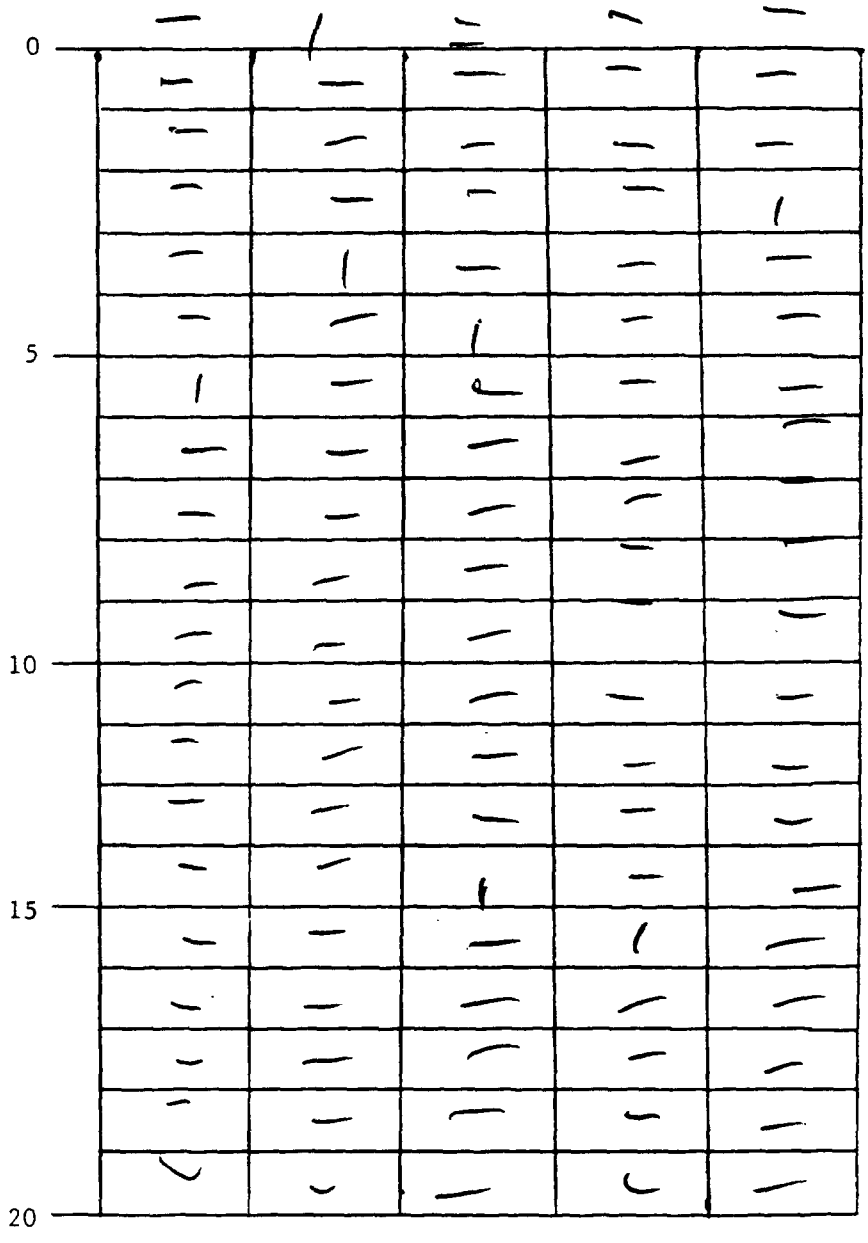
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 215 | ELAPSED TIME (t) 60 mins.

FLOW RATE 1.7 l/min | VOLUME (V) 102 liters

FIELD AREA (a) _____ mm^2 | BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .07 fibers/field



SUBTOTALS

TOTAL 7

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198 \times .07}{102} = .14$

Date: 12/8/75

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 218 ELAPSED TIME (t) 60 mins.

FLOW RATE _____ l/min VOLUME (V) 102 liters

FIELD AREA (a) _____ mm^2 BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 AV. FIBER COUNT (f) .57 fibers/field

	—	1	2	1	—
0	1	—	2	—	—
	—	1	1	—	—
	1	1	2	2	—
	1	—	—	3	—
	1	—	1	—	—
5	—	1	—	1	—
	1	—	—	—	1
	3	—	2	—	—
	—	—	—	—	—
	1	—	—	—	1
10	—	—	1	1	—
	2	1	1	—	1
	—	1	—	—	—
	—	—	2	—	—
15	1	—	2	—	1
	1	—	—	1	—
	1	—	—	—	—
	—	—	—	—	1
20	1	—	1	2	—
SUBTOTALS	15	6	19	11	6

TOTAL 57

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198 \times .57}{102} = 1.1$

SGP 0021030

Date: 1-9-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 144

ELAPSED TIME (t) 124 mins.

FLOW RATE _____ l/min

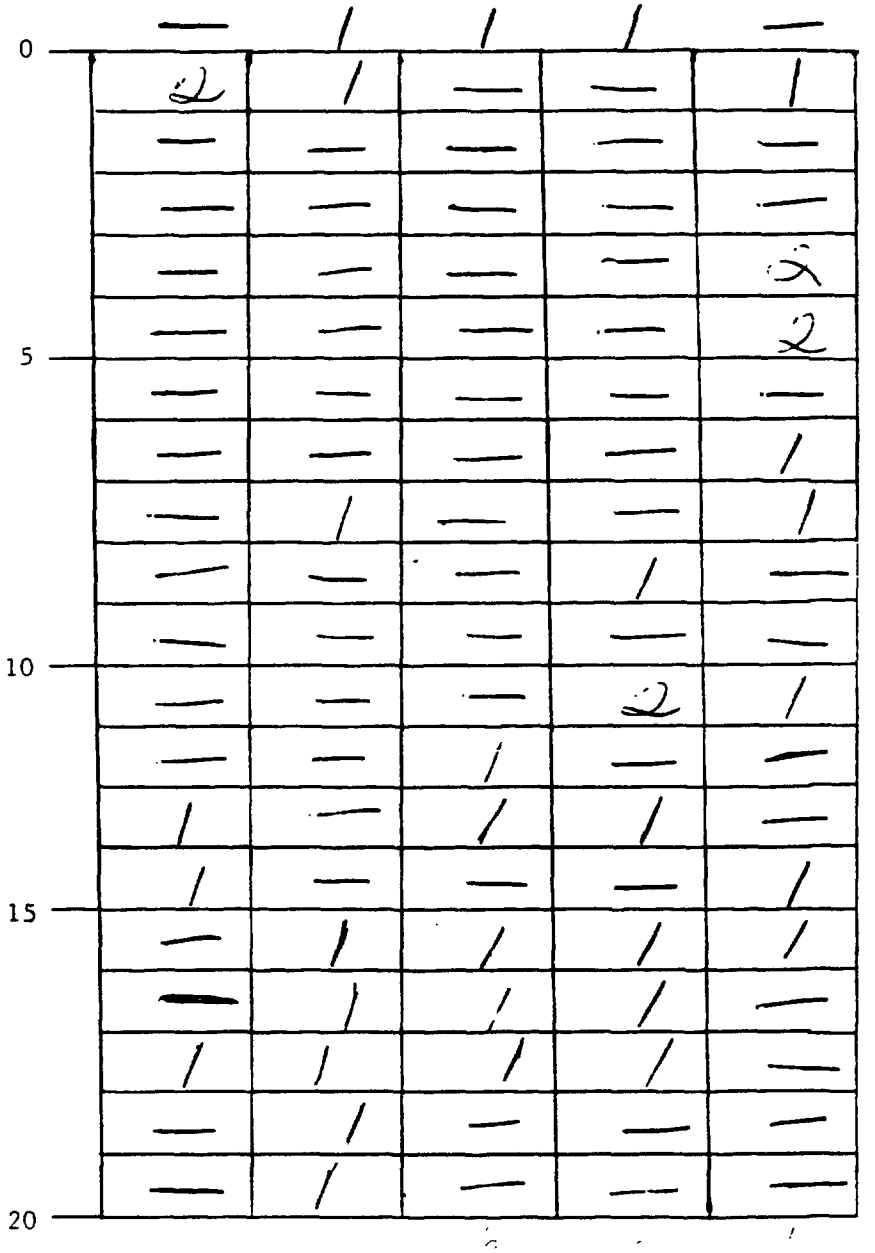
VOLUME (V) 211 liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .37 fibers/field



SUBTOTALS

TOTAL 37

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\frac{198 \times .37}{211} = .35$

AIRBORNE ASBESTOS FIBER SAMPLING

Plant Alion Sn. y.

Name E. Ribbeck

Title Trk Driver

Date 11/7/75

Pump Serial No. B-06-288

Sampled by

Signature

LOCATION	Unload Asbestos Car				
FILTER NO.	238				
FLOW: Pump Setting	6				
Liter/min (R)	1.7				
TIME: On	10:00 AM				
Off	12:00 Noon				
ELAPSED TIME (min) (t)	120				
VOLUME, Liters (t x r)	204				
REMARKS					
CONCENTRATION (F) fibers/ml	.28				

Total Sample Time (T) 120 mins.

$$\text{Time Weight Av. Concentration} = \frac{(t_1F_1) + (t_2\ _2) + (t_3F_3) + \ldots}{T}$$

$$= \boxed{.28}$$

SGP 0021032

Date: 12/9/71

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 238 — ELAPSED TIME (t) 120 mins.

FLOW RATE _____ l/min — VOLUME (V) 204 liters

FIELD AREA (a) _____ mm^2 — BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2 — AV. FIBER COUNT (f) 0.29 fibers/field

0	—	1	—	—	—
	1	—	—	—	—
	1	1	1	—	—
	1	1	—	—	—
	—	—	—	1	1
	1	—	—	—	—
5	—	1	1	—	—
	1	—	—	—	1
	—	—	1	—	2
	—	—	—	—	—
	—	2	—	1	—
10	1	—	—	—	—
	—	—	—	—	—
	—	1	—	—	1
	—	—	—	—	1
15	—	1	1	—	2
	—	—	1	—	—
	1	—	—	1	—
	—	—	—	—	—
20	—	—	2	—	—
SUBTOTALS	7	8	7	3	8

TOTAL 29

Constant $k = \frac{A}{1000\ a}$

Fiber Concentration $(F) = \frac{k\ (f-b)}{V}$ $\quad \frac{198(.29)}{204} = .28$

SGP 0021033

AKRON NEW YORK
AIRBORNE ASBESTOS DUST SURVEY
Date Sampled: October 23, 1975

Name	Location or Job Title	Time Weighted Average Fibers/ml.	Filter No.	Elapsed Time Minutes	Individual Count Fibers/ml.
Leon Spears	Packer-Stacker	1.43	135	88	1.98
			130	?	Void
			200	178	.20
			212	17	2.78
			216	69	1.17
			221	15	2.64
			223	31	.99
Clarence Blueye	Packer-Stacker	0.69	136	87	.58
			142	120	.41
			209	116	.41
			211	89	.59
			222	15	.78
			219	35	1.76
Al Kenworth	Ready Mix Mixer	0.84	143	97	.70
			137	70	.40
			201	168	.62
			210	17	3.00
			217	115	.63
Charlie Jackson	Dry Blender	.93	138	55	.43
			131	47	.85
			141	70	.47
			204	51	.29
			205	15	1.29
			207	103	Void
			214	143	1.57
Bob Krantz	Dry Blend Helper and Truck Driver	.89	139	155	.46
			203	53	.41
			206	105	.43
			213	101	1.96
			220	15	1.78
			231	29	1.55
Area Samples	Dry Blender		144	124	.35
	Dry Blender		202	79	.38
	Ready Mix		208	155	.32
	Warehouse		215	60	.14
	Packer		218	60	1.11
E. Ribbeck	Asbestos Car Unloading on 11/7/75	.28	238	120	.28

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