AKRON JOINT CEMENT PLANT
AIRBORNE ASBESTOS DUST SURVEY

Date Sampled: May 11, 197

PLAINTIFF'S EXHIBIT

GP-2072

SGP 0021690

Georgia-Pacific

intracompany memo

to	Mr. G. W. Green	location	Tigard
from	G. F. Fowler	location	Marietta
subject	Akron Plant Airborne Asbestos Sampling	date	May 26, 1976

On May 11, 1976 the Akron plant was sampled for airborne asbestos fibers.

Normal production of casein bag goods and ready mix was observed during the days operation. Good housekeeping was observed in most areas.

G. F. F.

GFF/gvp

Georgia-Pacific

intracompany memo

to	Mr. I. F. Weibel	location	Akron
from	G. W. Green	location	Tigard
subject	Airborne Asbestos Survey at Akron Joint Cement Plant	date	May 25, 1976

FILE

An asbestos dust survey was made at the Akron plant by George Fowler on May 11, 1976.

All the time weighted averages were well below the five fiber per milliliter maximum now in effect and also below the two fiber maximum to become effective in July.

The average of the three men sampled was 0.50. This compares with an average of 1.07 in October, 1975 and 1.33 in March, 1975 showing a continued drop in the asbestos dust level at the Akron plant.

Filter No. 441 taken on Leon Spears was not counted in his time weighted average because the pump was not running for the full time of the sample. Inclusion of this sample would have lowered his average slightly.

The counts were made and calculated by Dawn Steyaert.

G. W. G.

GWG/gvp

cc: Mr. J. R. Hurd - Portland
Mr. H. W. Peele - Wilmington
Mr. G. F. Fowler - Marietta

AKRON JOINT CEMENT PLANT
AIRBORNE ASBESTOS DUST SURVEY

Date Sampled: May 11, 1976

Name	Location or Job Title	Time Weighted Average Fiber/ml	Filter No.	Elapsed Time Mins.	Individual Count Fiber/ml.
Charlie Jackson	Dry Mixer	.39	402	76	.47
			405	78	.32
			419	15	1.81
			425	88	.36
			413	109	.33
			416	90	.25
Area Samples	Wet Mix		422	144	.41
	Dry Packing		418	121	.22
	Dry Mix		415	127	.22
	Dry Mix		400	85	.51
Al Kenworth	Ready Mix	.63	447	76	.35
	Wet Mixer		420	62	.98
			410	15	2.02
			403	90	.78
			426	108	.36
			411	90	.58
Leon Spears	Packer-Stacker	.47	*441	63	.17
			417	86	.45
			421	15	1.71
			439	89	.31
			401	97	.34
			446	94	.57

*This filter was not included in the time weighted average because the pump was off when the filter was changed.

SGP 0021693

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Leon Spears

Title Packer-Sacker

Date 5-11-76

Pump Serial No. B-06-0288

Sampled by George Fowler

Signature [signature]

LOCATION	DRY Packer	—	—	—	—	—			
FILTER NO.	441	417	421	439	401	446			
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	7:18	8:21	9:47	10:02	11:31	1:38			
Off	8:21	9:47	10:02	11:31	1:38	3:12			
ELAPSED TIME (min) (t)	63	86	15	89	97	94			
VOLUME, Liters (t x r)	107.1	146.2	25.5	151.3	164.9	159.8			
REMARKS Runing Casein Topping	Pump was ~~off~~ off when filter was changed				30 min Lunch Pump off				
CONCENTRATION (F) fibers/ml	.17	.45	1.71	.31	.34	.57			

Total Sample Time (T) ~~4444~~ 381 mins.

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

~~10.714~~ 38.7 + 25.65 + 27.59 + 32.98 + 53.58 = ~~189.21~~ ÷ ~~4444~~ = ~~.43~~

178.5 ÷ 381 = .47

SGP 0021694

AIRBORNE ASBESTOS FIBER SAMPLING

Plant Akron

Name AL Kenworth

Title Ready Mix Wet Mixer

Date 5-11-76

Pump Serial No. B-06-0422

Sampled by George Fowler

Signature

LOCATION	wet mix	-	-	-	-	-			
FILTER NO.	447	420	410	403	426	411			
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	7:09	8:25	9:42	9:57	11:27	1:45			
Off	8:25	9:42	9:57	11:27	1:45	3:15			
ELAPSED TIME (min) (t)	76	62	15	90	108	90			
VOLUME, Liters (t x r)	129.2	105.4	25.5	153	183.6	153			
REMARKS			*off for 15 min Break		30 min Lunch Pumps off				
CONCENTRATION (F) fibers/ml	.35	.98	2.02	.78	.36	.58			

Total Sample Time (T) 441 mins.

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

26.6 + 60.76 + 30.3 + 70.2 + 38.88 + 52.2 = 278.94 ÷ 441 = .63

SGP 0021695

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name

Title Area Samples

Date 5-11-76

Pump Serial No. B-06-0444

Sampled by George Fowler

Signature

LOCATION	wet mix Area sample	DRY Packing area	DRY mix area	DRY mix area	BLANK control
FILTER NO.	422	418	415	400	428
FLOW: Pump Setting	6	6	6	6	
Liter/min (R)	1.75	1.75	1.75	1.75	
TIME: On	7:08	9:32	11:33	1:40	
Off	9:32	11:33	1:40	3:05	
ELAPSED TIME (min) (t)	144	121	127	85	
VOLUME, Liters (t x r)	252	211.8	222.3	148.8	
REMARKS					
CONCENTRATION (F) fibers/ml	.41	.22	.22	.51	

Total Sample Time (T) [redacted] mins.

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

[redacted]

AIRBORNE ASBESTOS FIBER SAMPLING

Plant AKRON

Name Charlie Jackson

Title Dry mixer

Date 5-11-76

Pump Serial No. R-74-0799

Sampled by George Fowler

Signature

LOCATION	DRY mixer	—	—	—	—	—			
FILTER NO.	402	405	419	425	413	416			
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	7:11	8:27	9:45	10:00	11:28	1:47			
Off	8:27	9:45	10:00	11:28	1:47	3:17			
ELAPSED TIME (min) (t)	76	78	15	88	109	90			
VOLUME, Liters (t x r)	144.4	148.2	28.5	167.2	207.1	171			
REMARKS Blending Topping Casein Filler					30 min Lunch Pump off				
CONCENTRATION (F) fibers/ml	.47	.32	1.81	.36	.33	.25			

Total Sample Time (T) 456 mins.

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

35.72 + 24.96 + 27.15 + 31.68 + 35.97 + 22.5 = 177.98 ÷ 456 = .39

SGP 0021697

Date: 4-4-91

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. [illegible]

ELAPSED TIME (t) 103 mins.

FLOW RATE 1.7 l/min

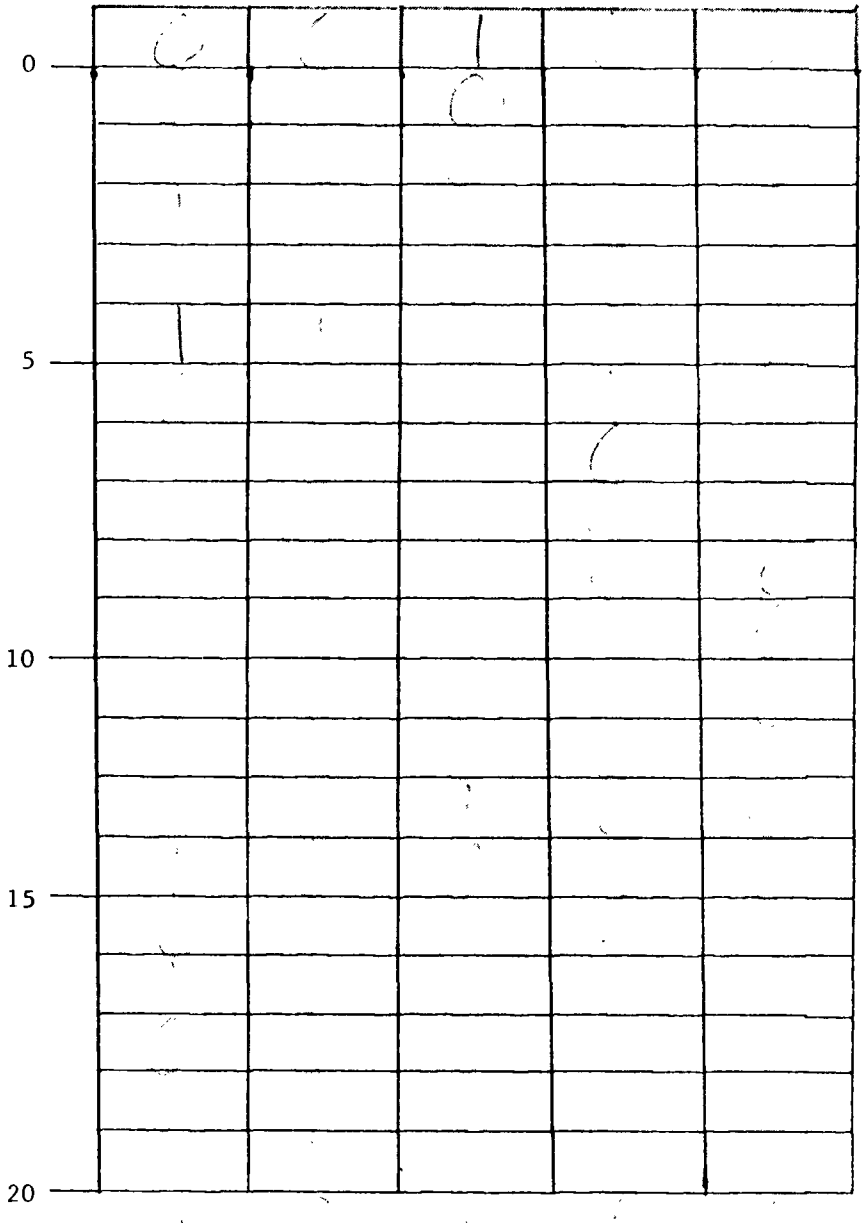
VOLUME (V) 107.1 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .12 fibers/field



SUBTOTALS

TOTAL

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.12-.03)}{107.1} = .17$

Date: 5.9.12

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 117

ELAPSED TIME (t) 86 mins.

FLOW RATE 1.7 l/min

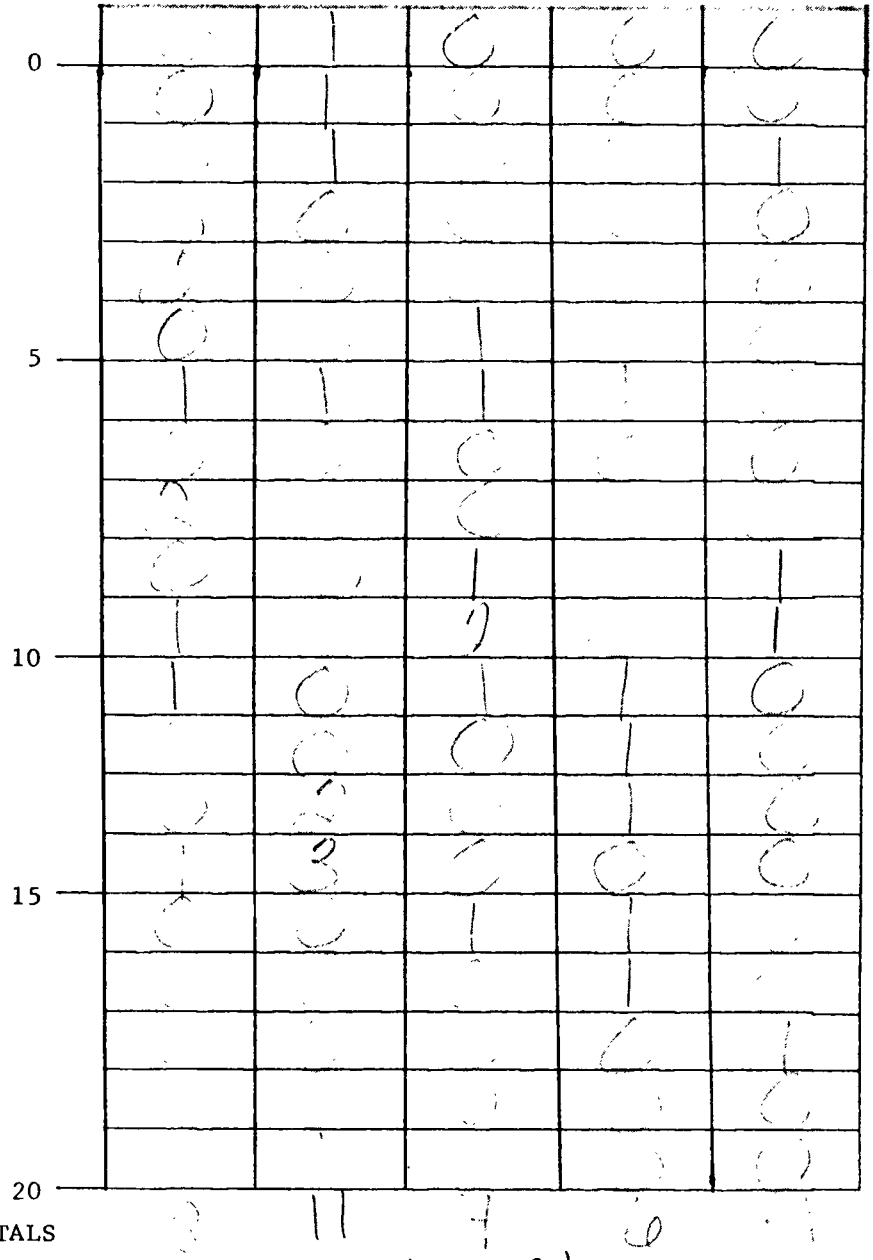
VOLUME (V) 146.2 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .36 fibers/field



SUBTOTALS 3 11 7 0 1 TOTAL 32

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.36-.03)}{146.2} = .45$

SGP 0021699

Date: 5-21-96

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 121

ELAPSED TIME (t) 15 mins.

FLOW RATE 1.7 l/min

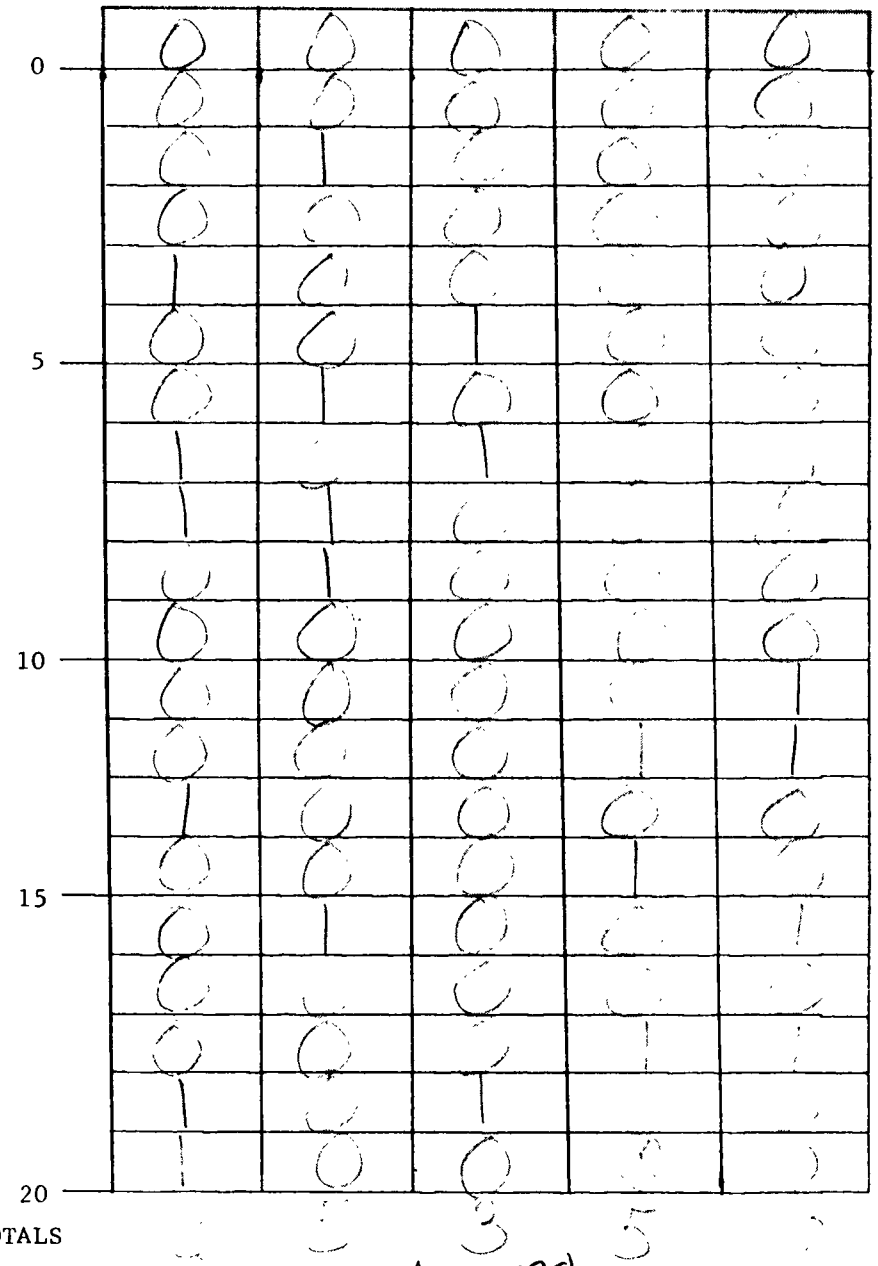
VOLUME (V) 25.5 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .25 fibers/field



SUBTOTALS 1 5 3 5 1

TOTAL 25

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

Fiber Concentration (F) = $\frac{k\ (f-b)}{V} = \frac{198\ (.25-.03)}{25.5} = 1.71$

SGP 0021700

Date: 5-18-94

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 439

ELAPSED TIME (t) 89 mins.

FLOW RATE 1.7 l/min

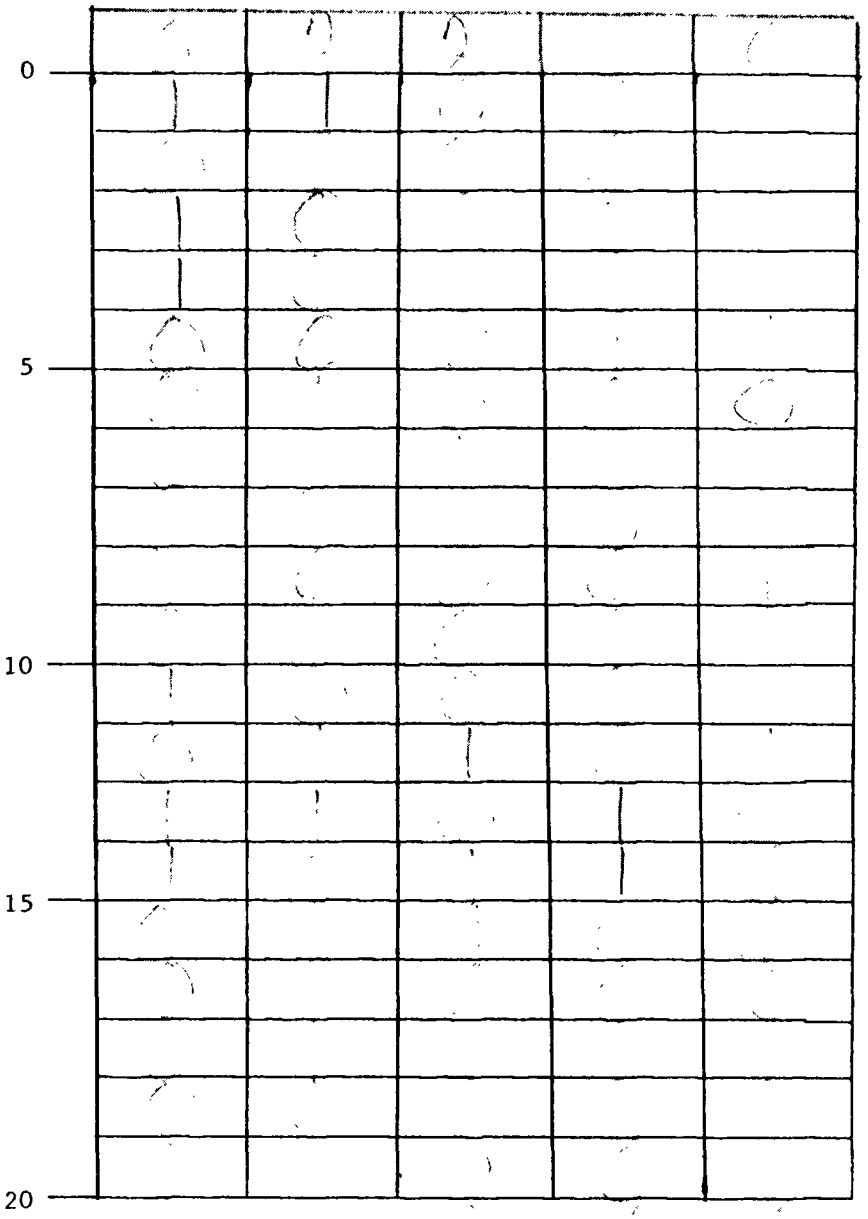
VOLUME (V) 151.3 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .27 fibers/field



SUBTOTALS

TOTAL

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.27-.03)}{151.3} = .31$

Date: 5-20-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 401 | ELAPSED TIME (t) 97 mins.

FLOW RATE 1.7 l/min | VOLUME (V) 164.9 liters

FIELD AREA (a) .00432 mm^2 | BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .31 fibers/field

0	0	0	0	0	0
	2	0	0	1	0
	0	0	1	0	0
	0	0	0	1	2
	1	0	0	0	0
	0	1	1	0	0
5	0	0	0	0	0
	1	2	1	1	3
	0	1	0	0	0
	1	0	0	1	0
	0	0	1	1	0
10	0	0	0	0	1
	0	1	0	0	0
	0	0	0	1	0
	0	0	0	0	0
15	0	0	0	0	0
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	1
	1	0	0	0	0
20	0	1	0	0	0
SUBTOTALS	4	5	4	5	7	TOTAL 31

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.31-.03)}{164.9} = .34$

SGP 0021702

Date: 5/19/87

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. _____

ELAPSED TIME (t) 94 mins.

FLOW RATE 1.7 1/min

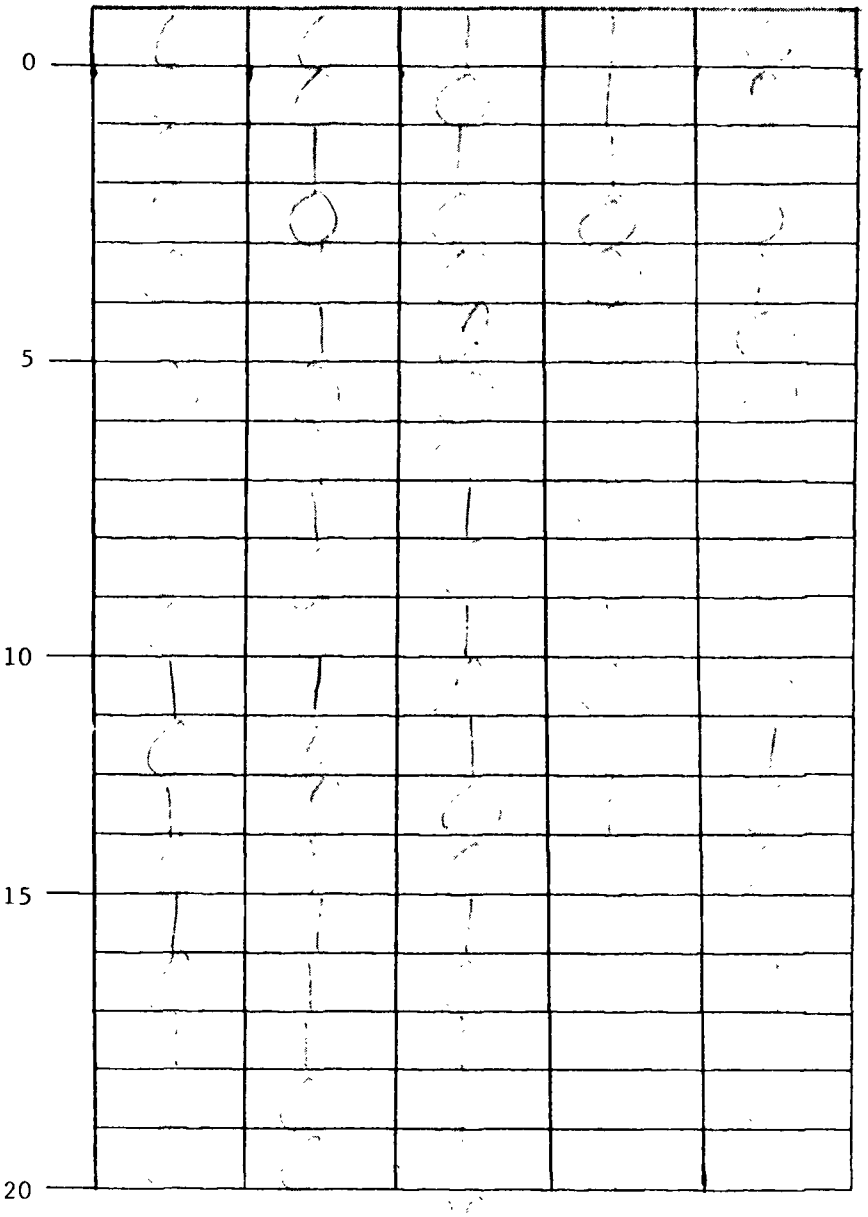
VOLUME (V) 159.8 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .49 fibers/field



SUBTOTALS

TOTAL 11

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.49-.03)}{159.8} = .57$

SGP 0021703

Date: 5-21-96

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 3K17

ELAPSED TIME (t) 76 mins.

FLOW RATE 1.7 l/min

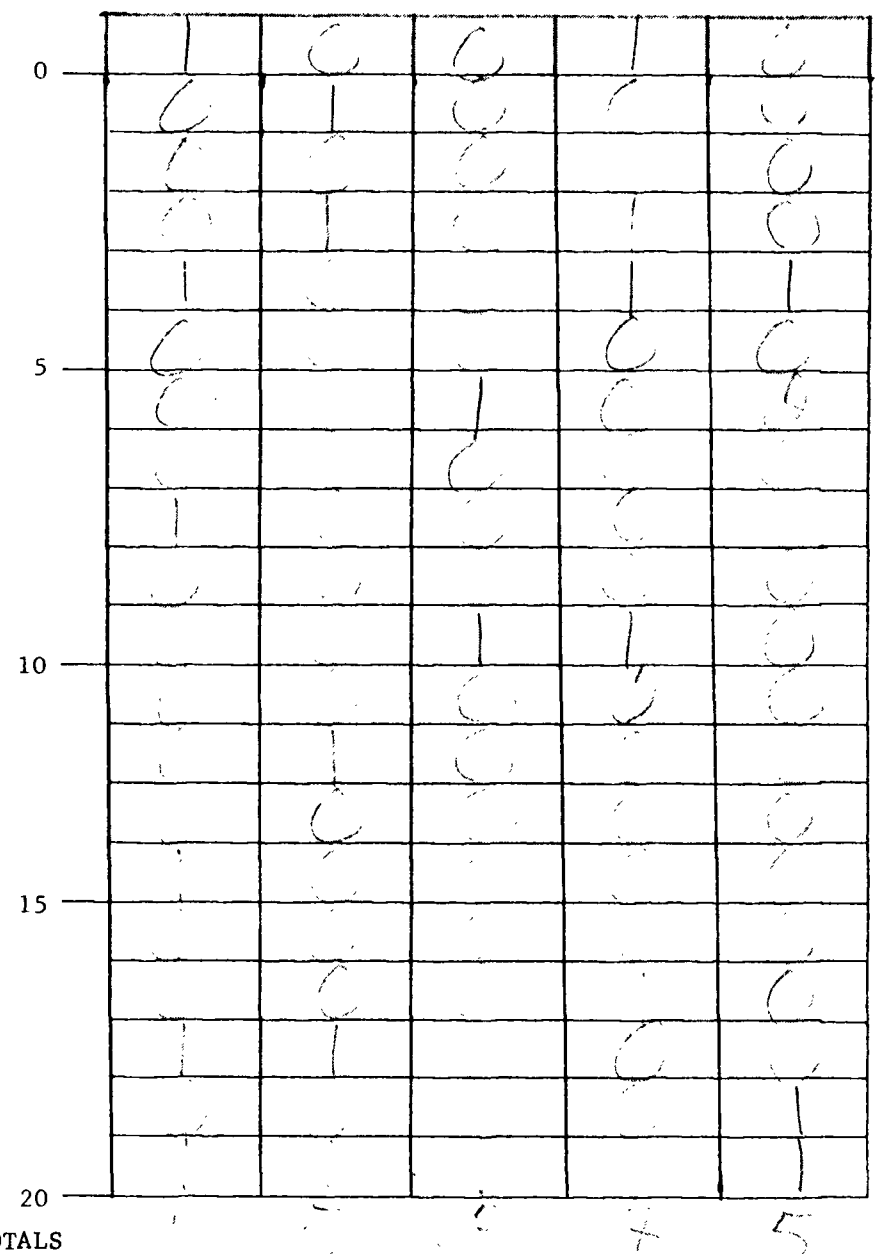
VOLUME (V) 129.2 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

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



SUBTOTALS 1 5 6 7 5 TOTAL 26

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.26-.03)}{129.2} = .35$

SGP 0021704

Date: 5-25-7[illegible]

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 40

ELAPSED TIME (t) 62 mins.

FLOW RATE 1.7 l/min

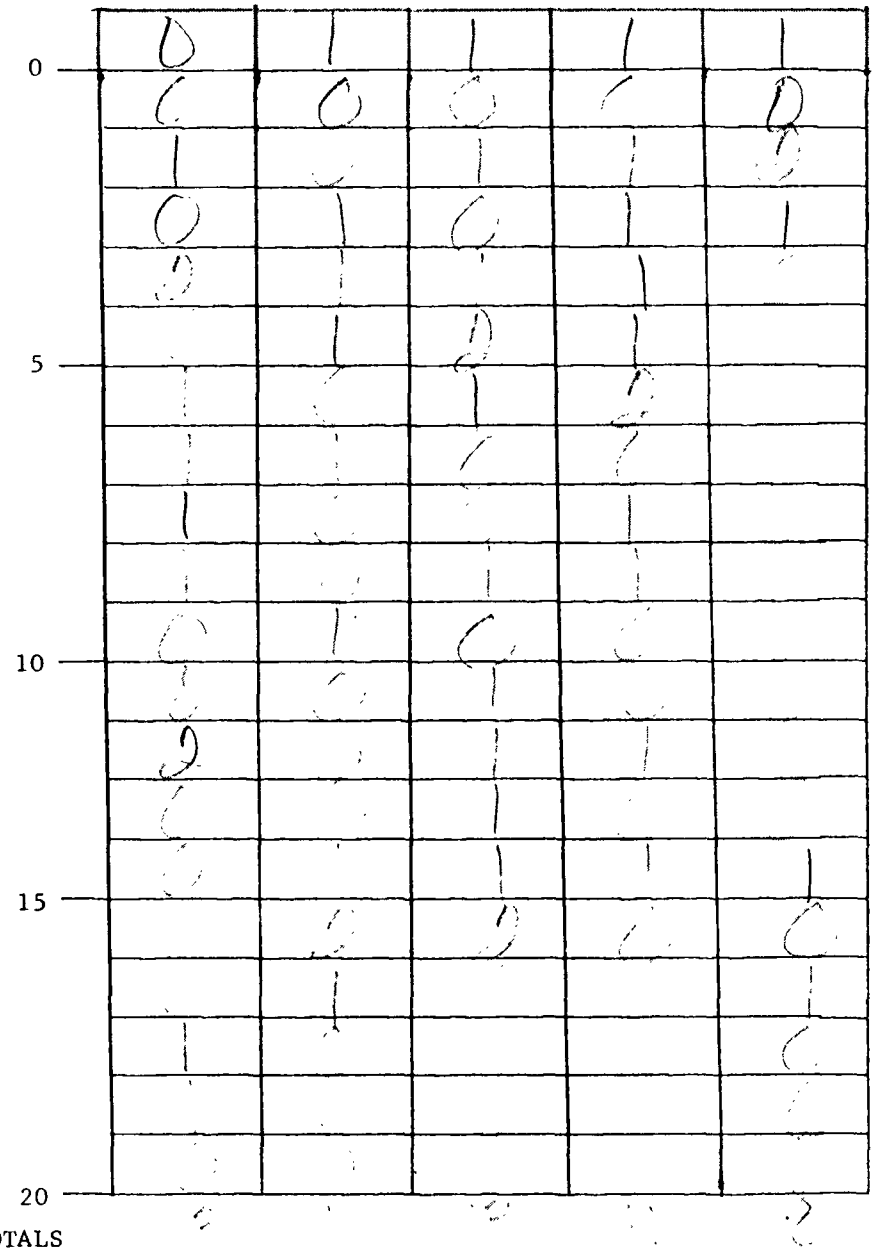
VOLUME (V) 105.4 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .55 fibers/field



SUBTOTALS

TOTAL

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

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ = $\frac{198(.55-.03)}{105.4}$ = .98

Date: 3-24-96

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 210

ELAPSED TIME (t) 15 mins.

FLOW RATE 1.7 l/min

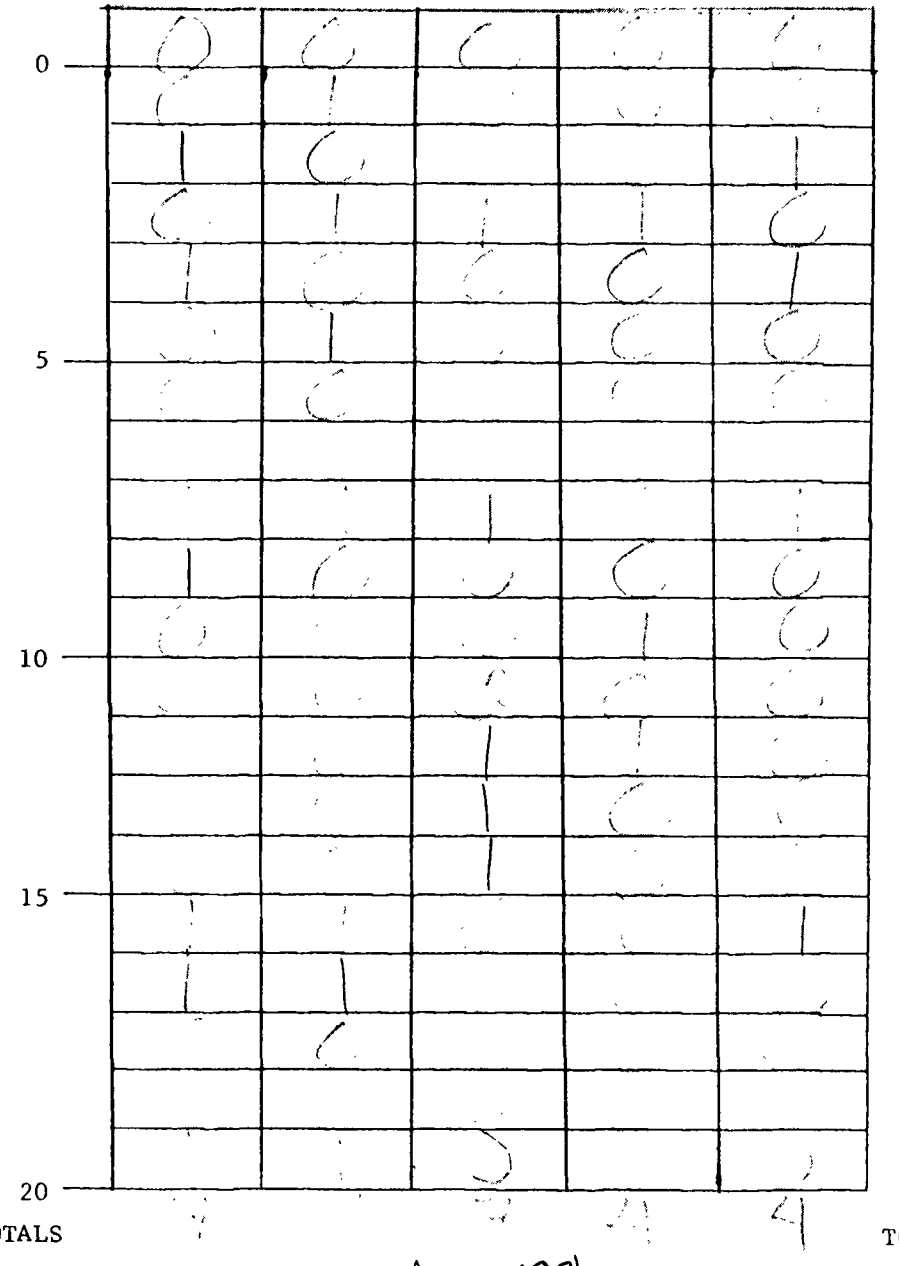
VOLUME (V) 25.5 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

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



SUBTOTALS 2 3 4 4 TOTAL 13

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.29-.03)}{25.5} = 2.02$

SGP 0021706

Date: [illegible]

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. [illegible]

ELAPSED TIME (t) 90 mins.

FLOW RATE 1.7 l/min

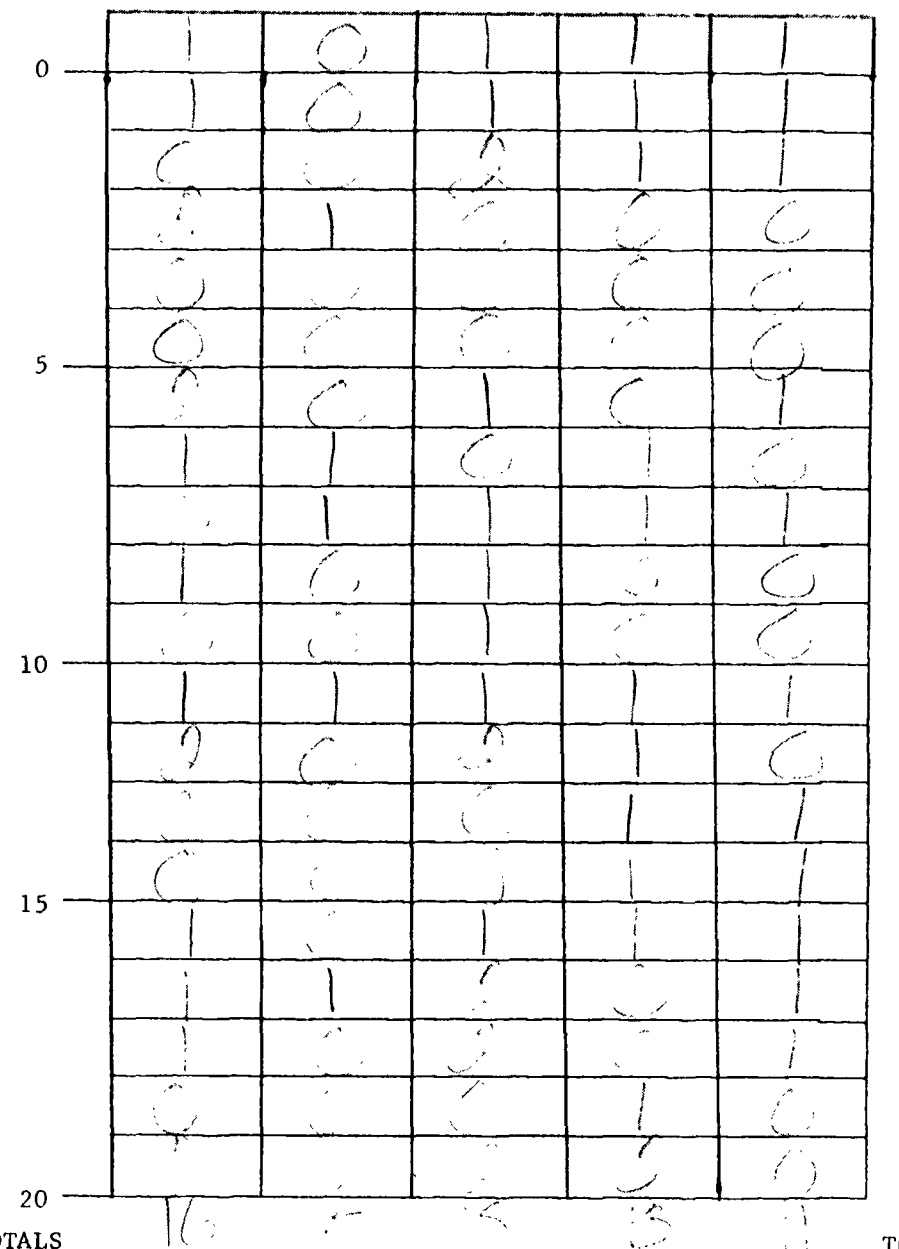
VOLUME (V) 153 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .63 fibers/field



	1	0	1	1	1
0	1	0	1	1	1
	0	0	0	1	1
	0	1	0	0	0
	0	0		0	0
	0	0	0	0	0
5	0	0	1	0	1
	1	1	0	1	0
	0	1	1	1	1
	1	0	1	0	0
	0	0	1	0	0
10	1	1	1	1	1
	0	0	0	1	0
	0	0	0	1	1
	0	0	0	1	1
15	1	0	1	1	1
	1	1	0	0	1
	1	0	0	0	1
	0	0	0	1	0
	0	0	0	0	0
20					
SUBTOTALS	16	[illegible]	[illegible]	13	[illegible]

TOTAL [illegible]

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.63-.03)}{153} = .78$

SGP 0021707

Date: 5-21-96

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 4760

ELAPSED TIME (t) 108 mins.

FLOW RATE 1.7 l/min

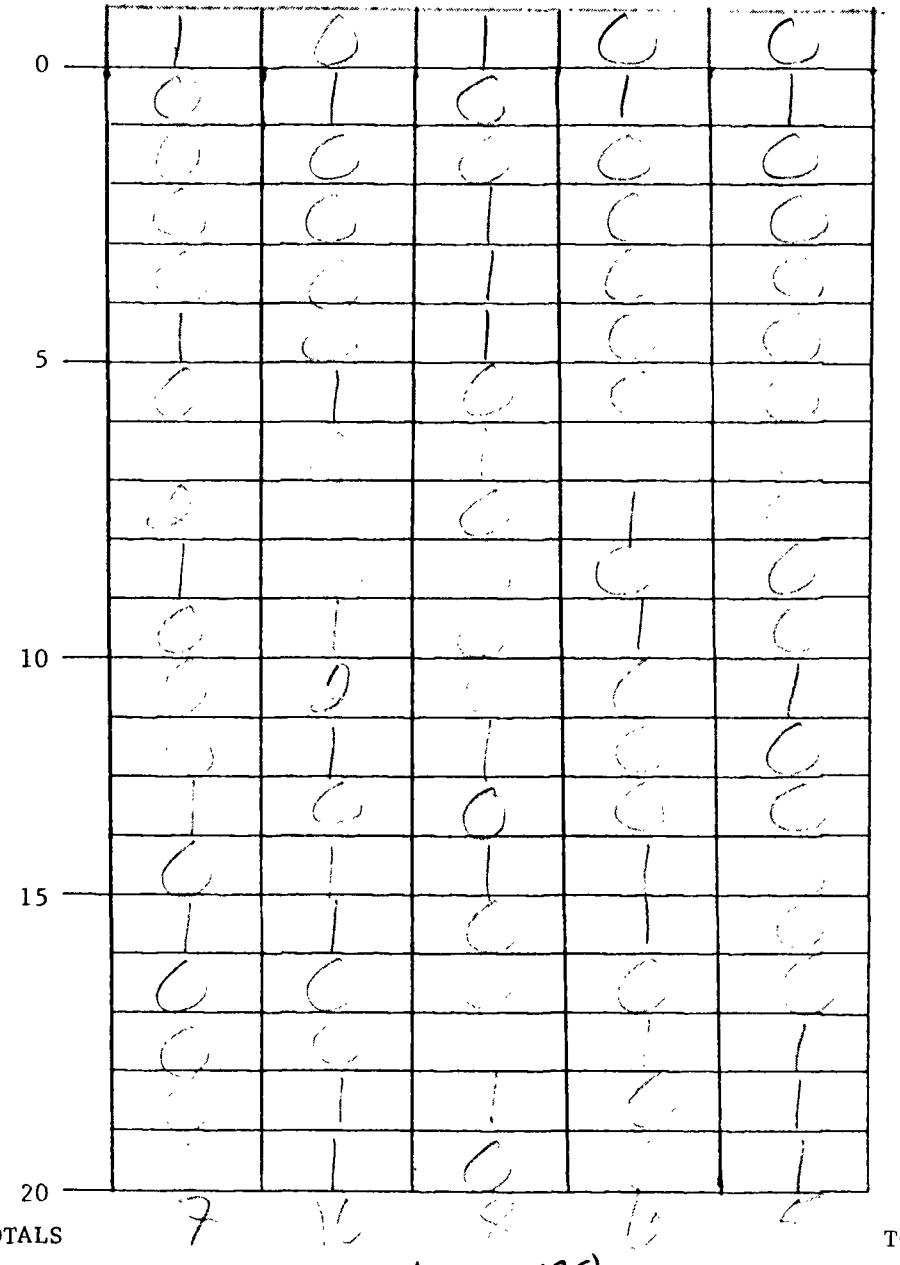
VOLUME (V) 183.6 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .36 fibers/field



SUBTOTALS 7 12 8 1 8

TOTAL 36

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

Fiber Concentration (F) = $\frac{k\ (f-b)}{V} = \frac{198\ (.36-.03)}{183.6} = .36$

Date: 5-18-92

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 111

ELAPSED TIME (t) 90 mins.

FLOW RATE 1.7 l/min

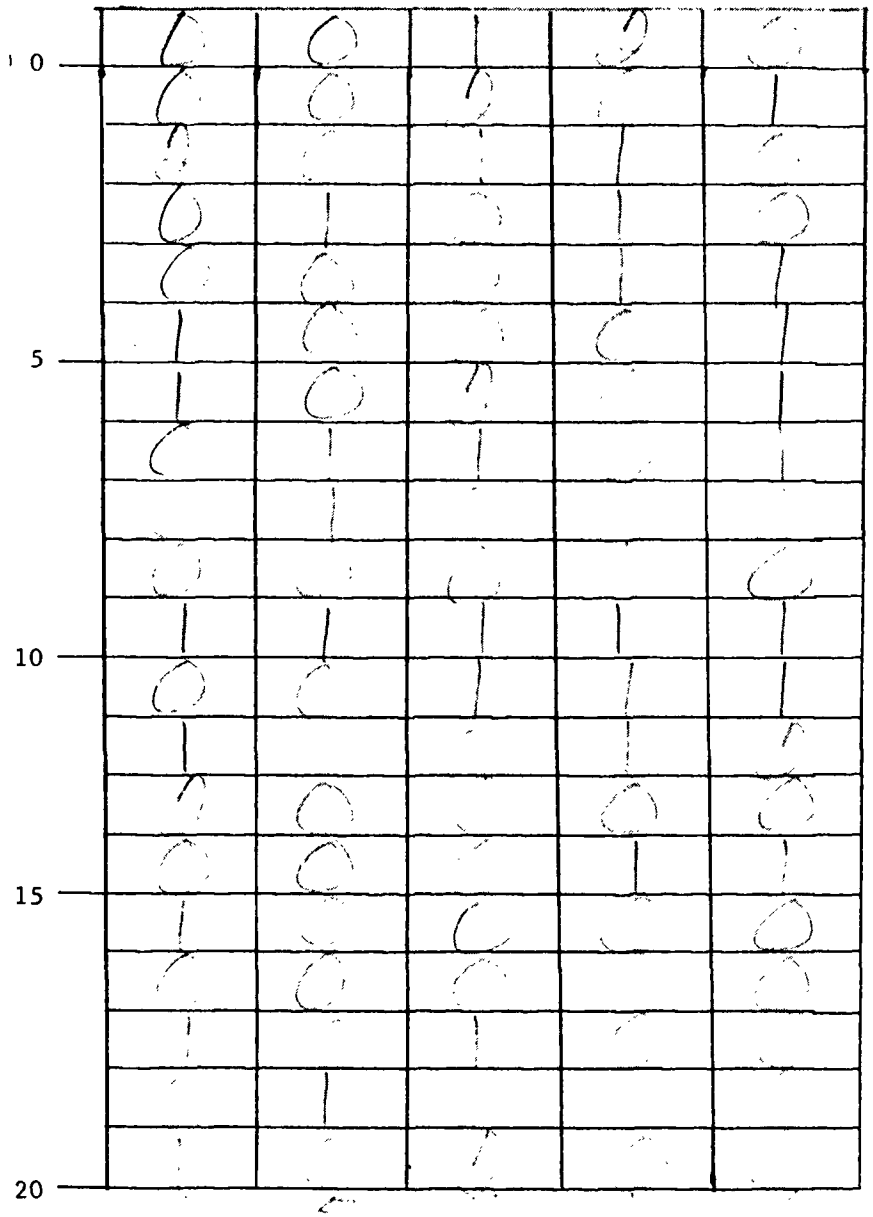
VOLUME (V) 153 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .48 fibers/field



SUBTOTALS

TOTAL

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

Fiber Concentration (F) = $\frac{k\ (f-b)}{V} = \frac{198(.48-.03)}{153} = .58$

Date: 5-24-10

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 429

ELAPSED TIME (t) 144 mins.

FLOW RATE 1.75 l/min

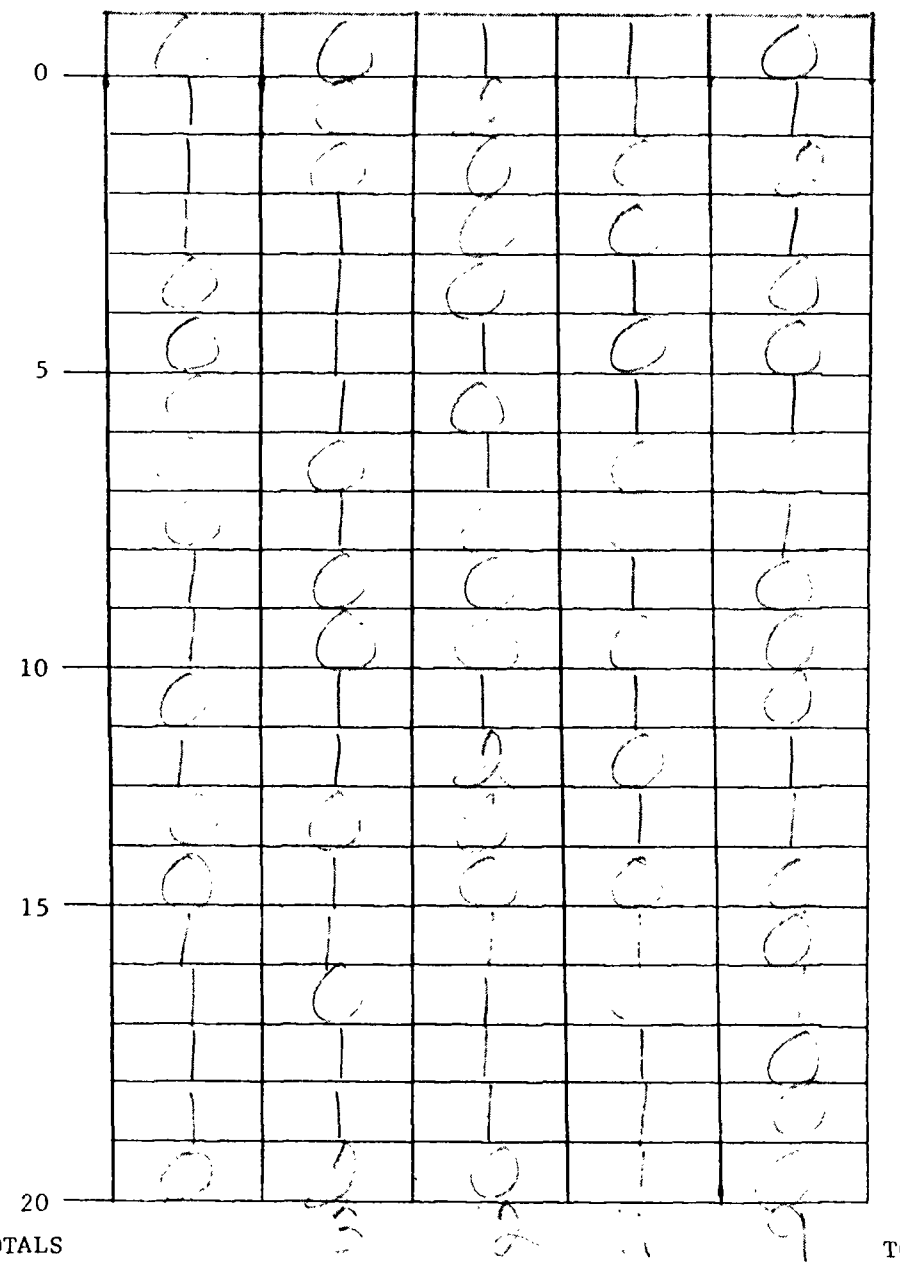
VOLUME (V) 252 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .55 fibers/field



SUBTOTALS 5 2 1 9 TOTAL 17

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.55-.03)}{252} = .41$

SGP 0021710

Date: 5-26-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 418

ELAPSED TIME (t) 121 mins.

FLOW RATE 1.75 l/min

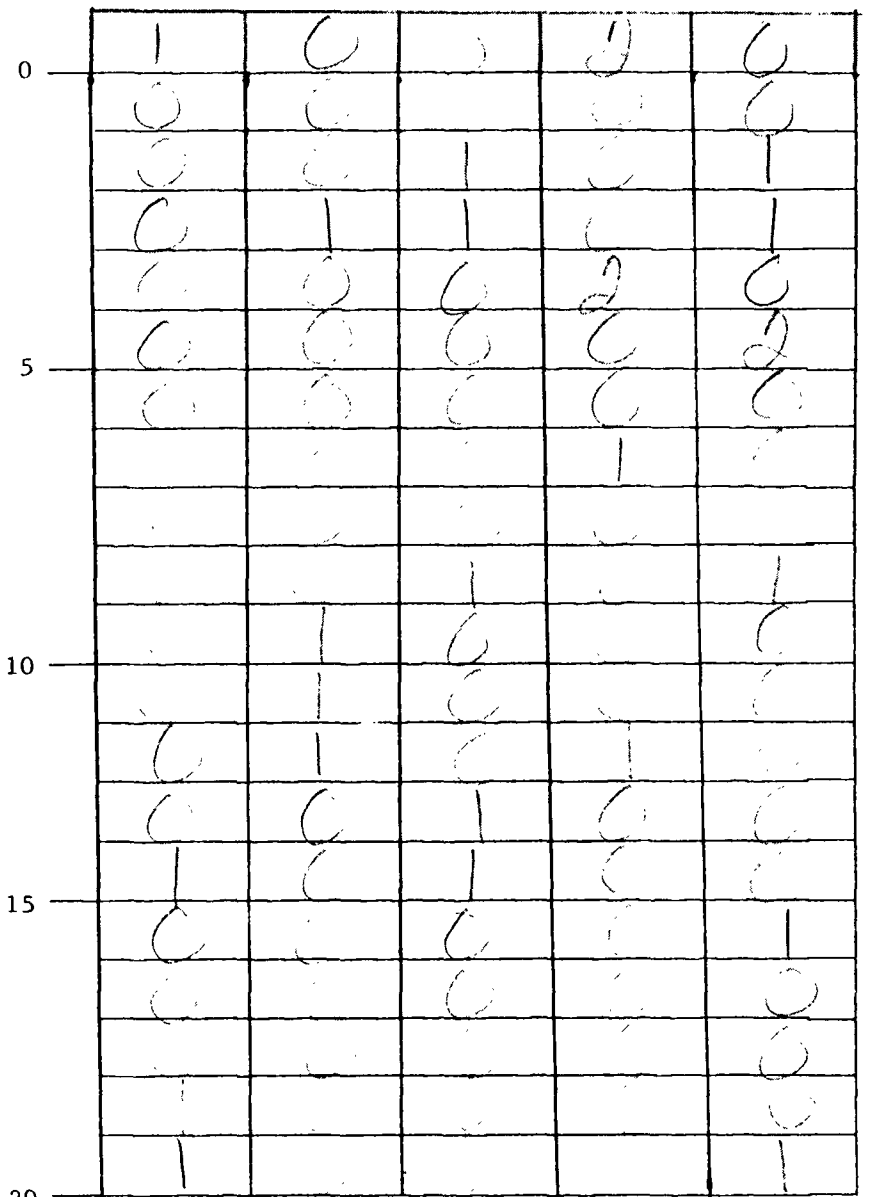
VOLUME (V) 211.8 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

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



SUBTOTALS 4 4 5 6 7 TOTAL 26

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

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ = $\frac{198(.26-.03)}{211.8}$ = .22

SGP 0021711

Date: 5-26-96

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 415

ELAPSED TIME (t) 127 mins.

FLOW RATE 1.75 l/min

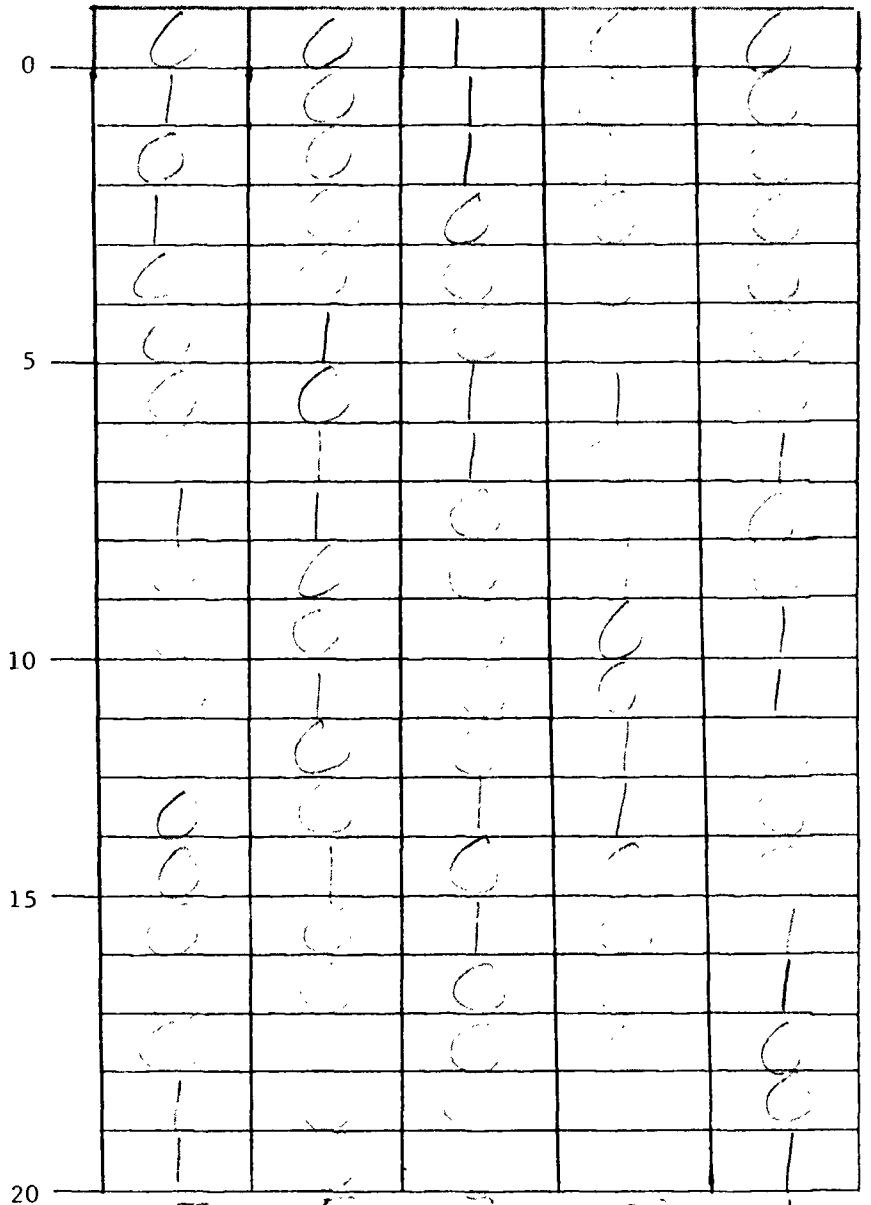
VOLUME (V) 222.3 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .28 fibers/field



SUBTOTALS 5 5 7 5 6 TOTAL 28

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

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ = $\frac{198(.28-.03)}{222.3}$ = .22

Date: 5-20-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 40

ELAPSED TIME (t) 85 mins.

FLOW RATE 1.75 l/min

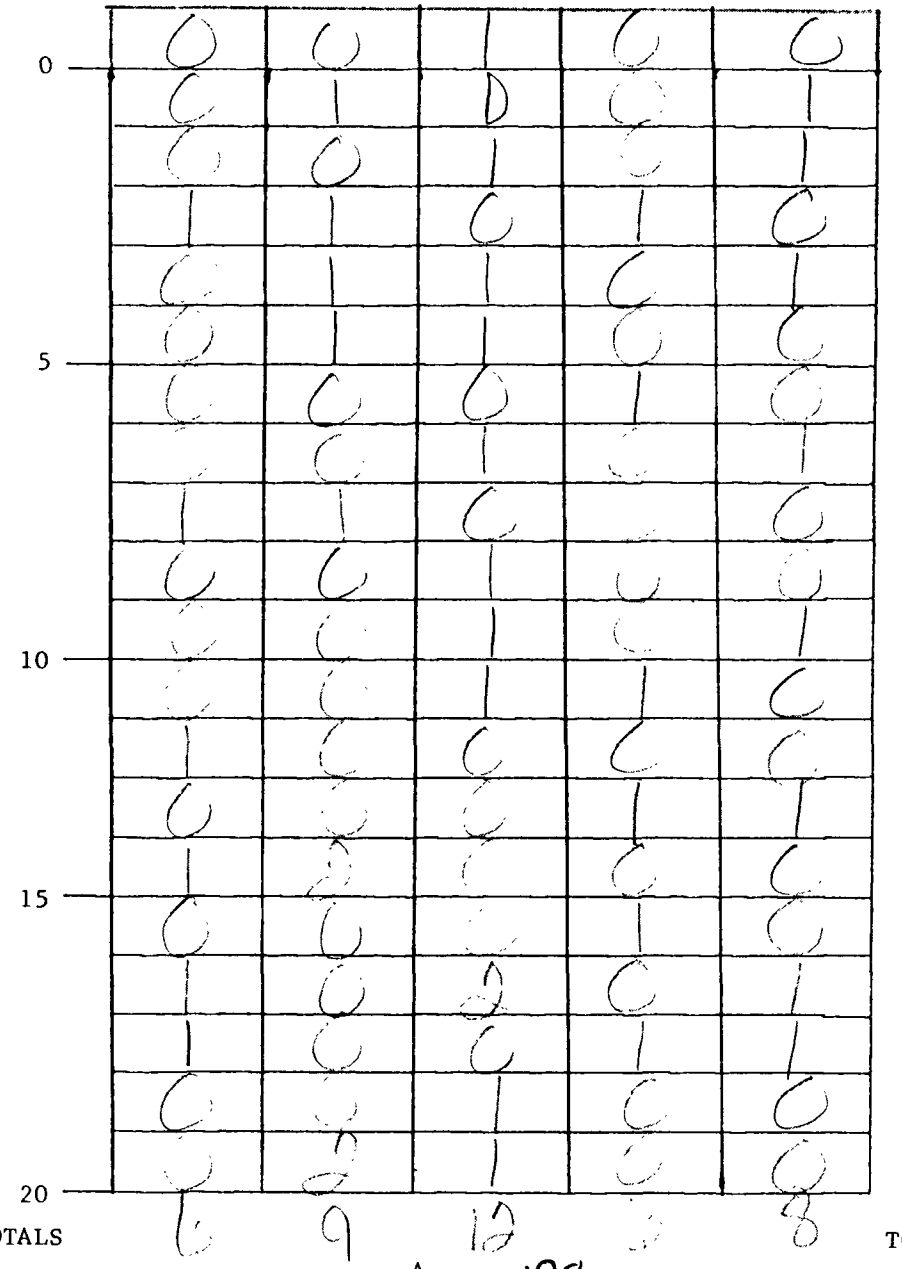
VOLUME (V) 148.8 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .41 fibers/field



SUBTOTALS	6	9	12	3	8	TOTAL 41

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.41-.03)}{148.8} = .51$

SGP 0021713

Date: [illegible]

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 1

ELAPSED TIME (t) 76 mins.

FLOW RATE 1.9 l/min

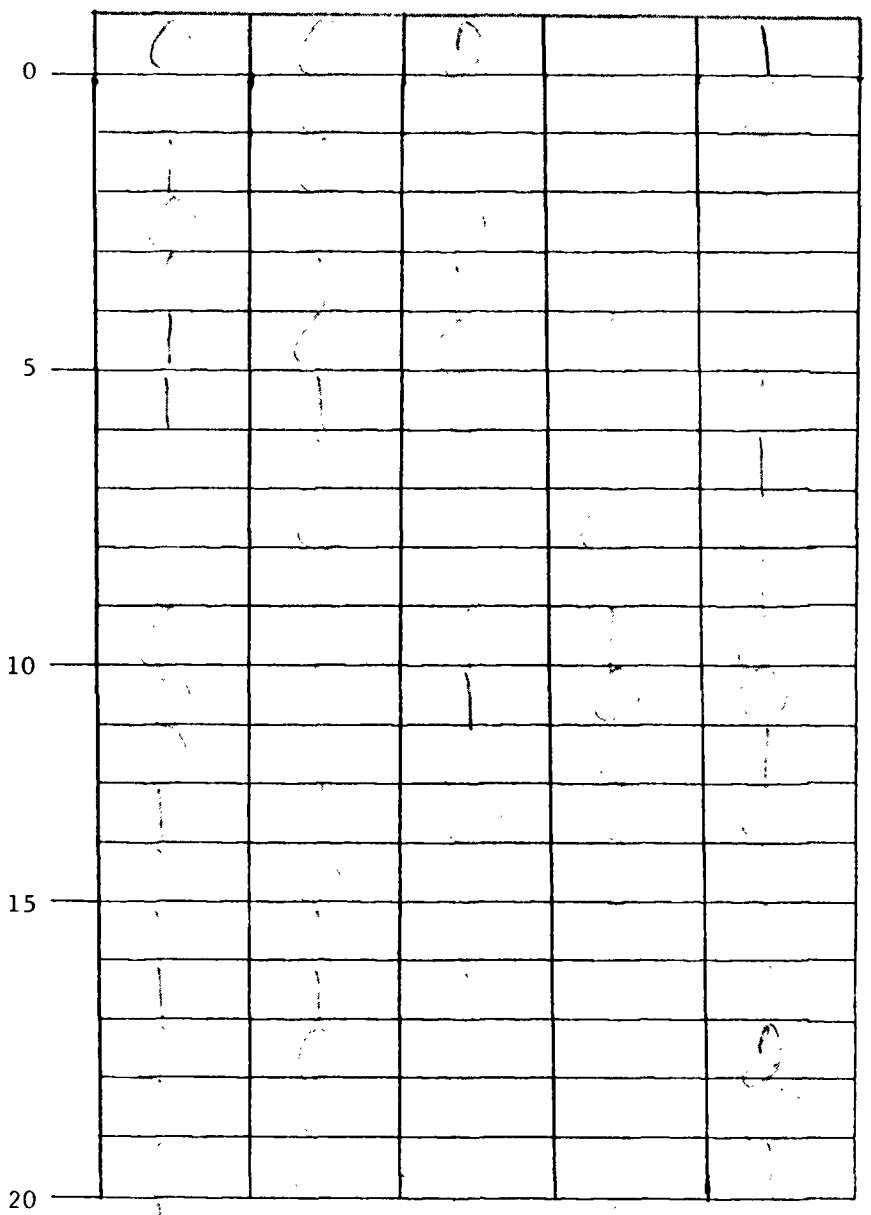
VOLUME (V) 144.4 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

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



SUBTOTALS

TOTAL 37

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.37-.03)}{144.4} = .47$

Date: 5-24-96

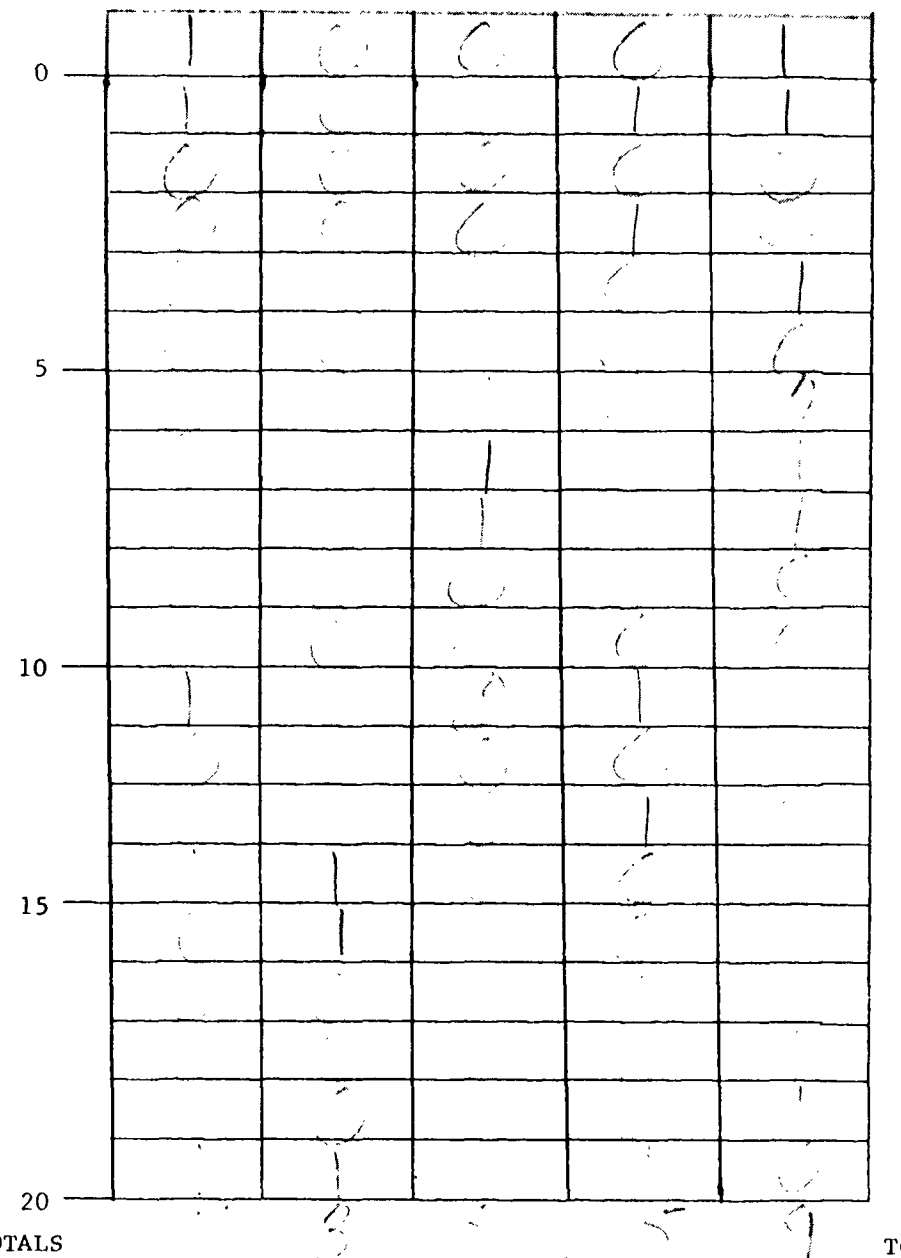
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 405 | ELAPSED TIME (t) 78 mins.

FLOW RATE 1.9 l/min | VOLUME (V) 148.2 liters

FIELD AREA (a) .00432 mm^2 | BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .27 fibers/field



SUBTOTALS 3 5 9 10

TOTAL 27

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

Fiber Concentration (F) = $\frac{k\ (f-b)}{V}$ = $\frac{198(.27-.03)}{148.2}$ = .32

SGP 0021715

Date: 5-21-86

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 419

ELAPSED TIME (t) 15 mins.

FLOW RATE 1.9 l/min

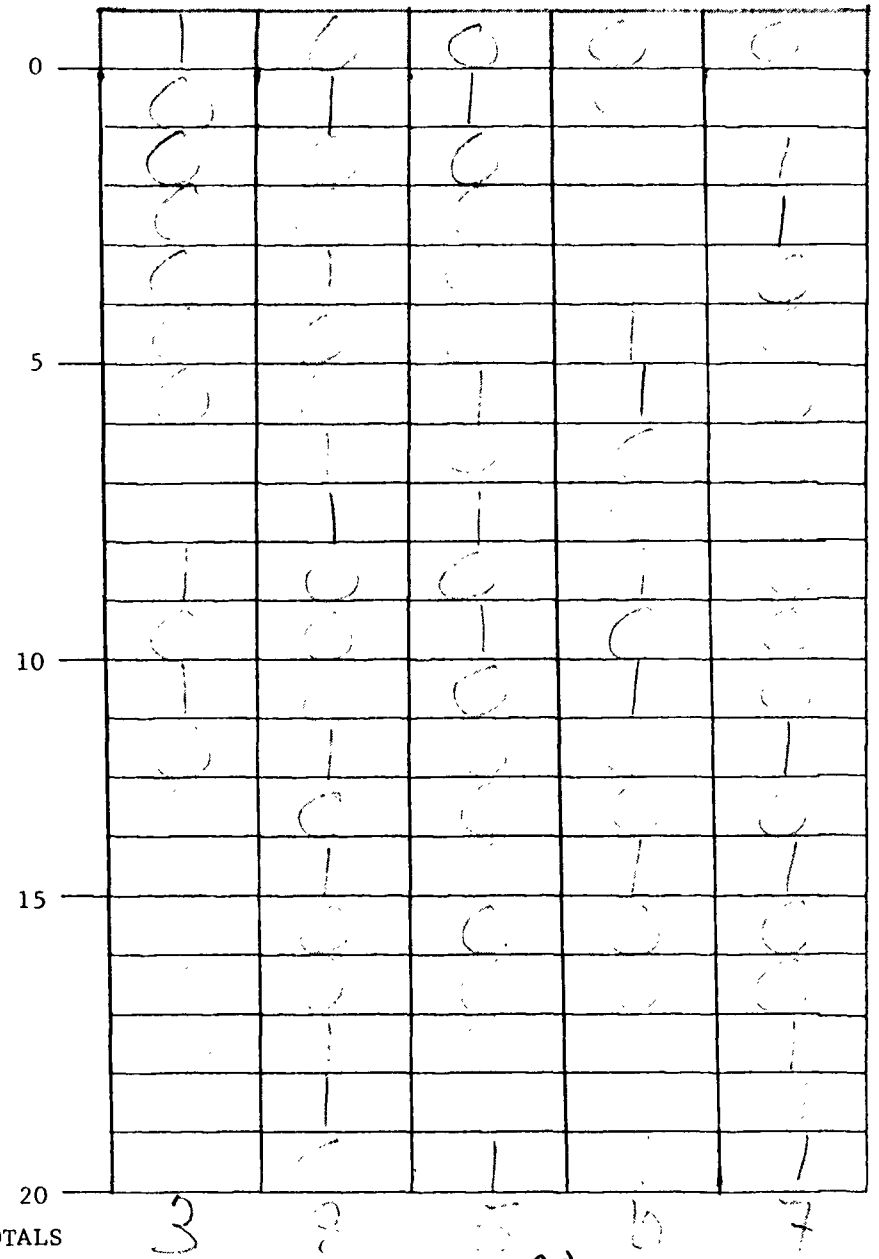
VOLUME (V) 28.5 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

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



SUBTOTALS 3 2 5 6 7 TOTAL 23

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.29-.03)}{28.5} = 1.81$

SGP 0021716

Date: 5-24-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 425

ELAPSED TIME (t) 88 mins.

FLOW RATE 1.9 l/min

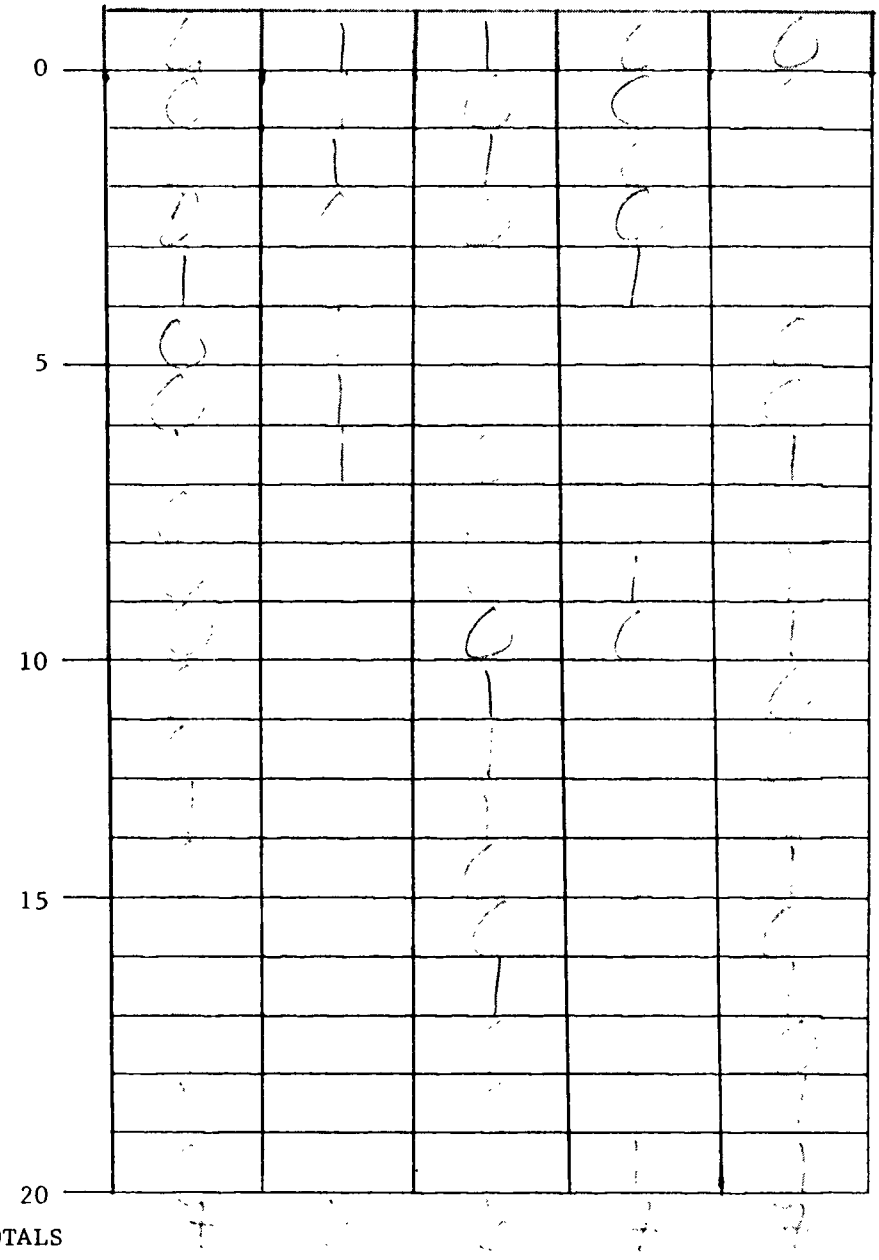
VOLUME (V) 167.2 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) .33 fibers/field



SUBTOTALS

TOTAL 33

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.33-.03)}{167.2} = .36$

SGP 0021717

Date: 5-25-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 413

ELAPSED TIME (t) 109 mins.

FLOW RATE 1.9 l/min

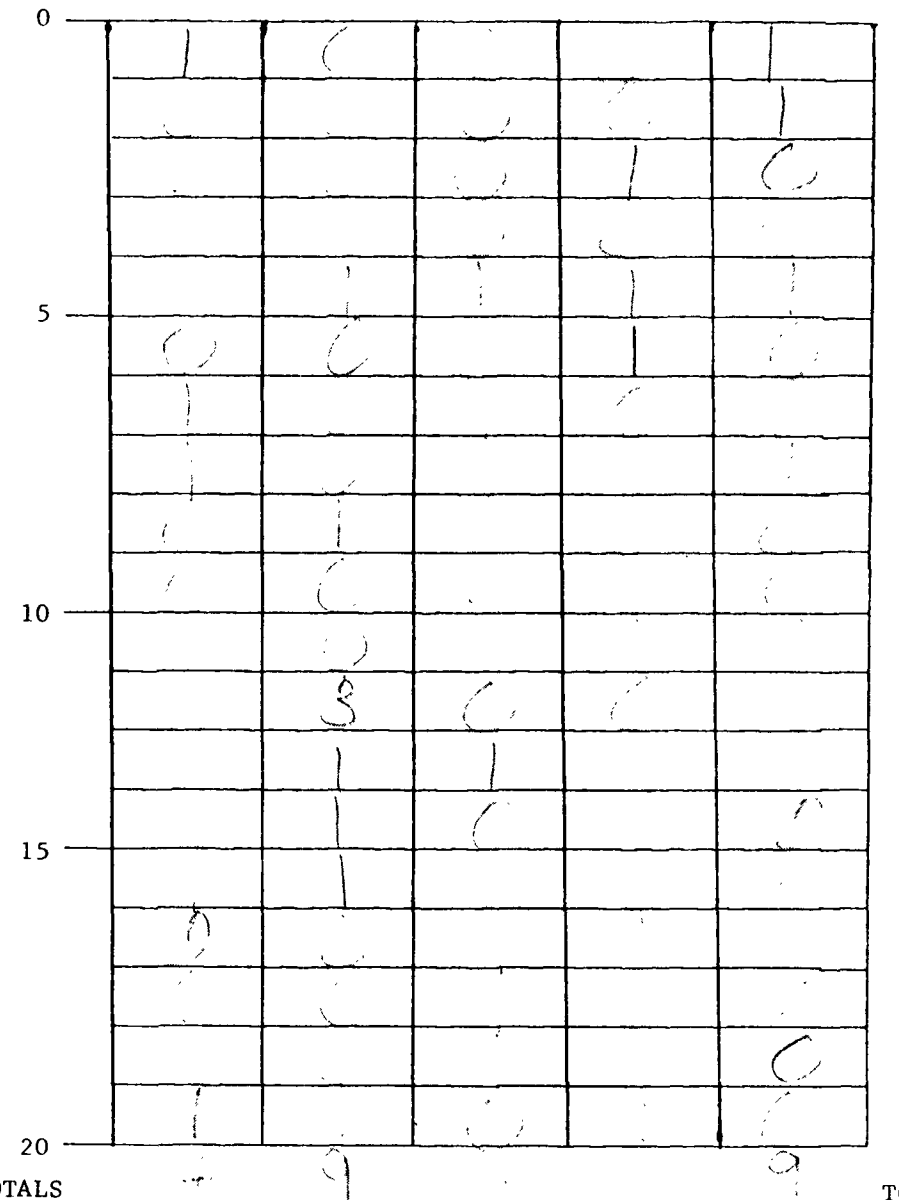
VOLUME (V) 207.1 liters

FIELD AREA (a) .00432 mm^2

BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2

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



SUBTOTALS 1 9 9

TOTAL 37

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.37-.03)}{207.1} = .33$

SGP 0021718

Date: 5-18-76

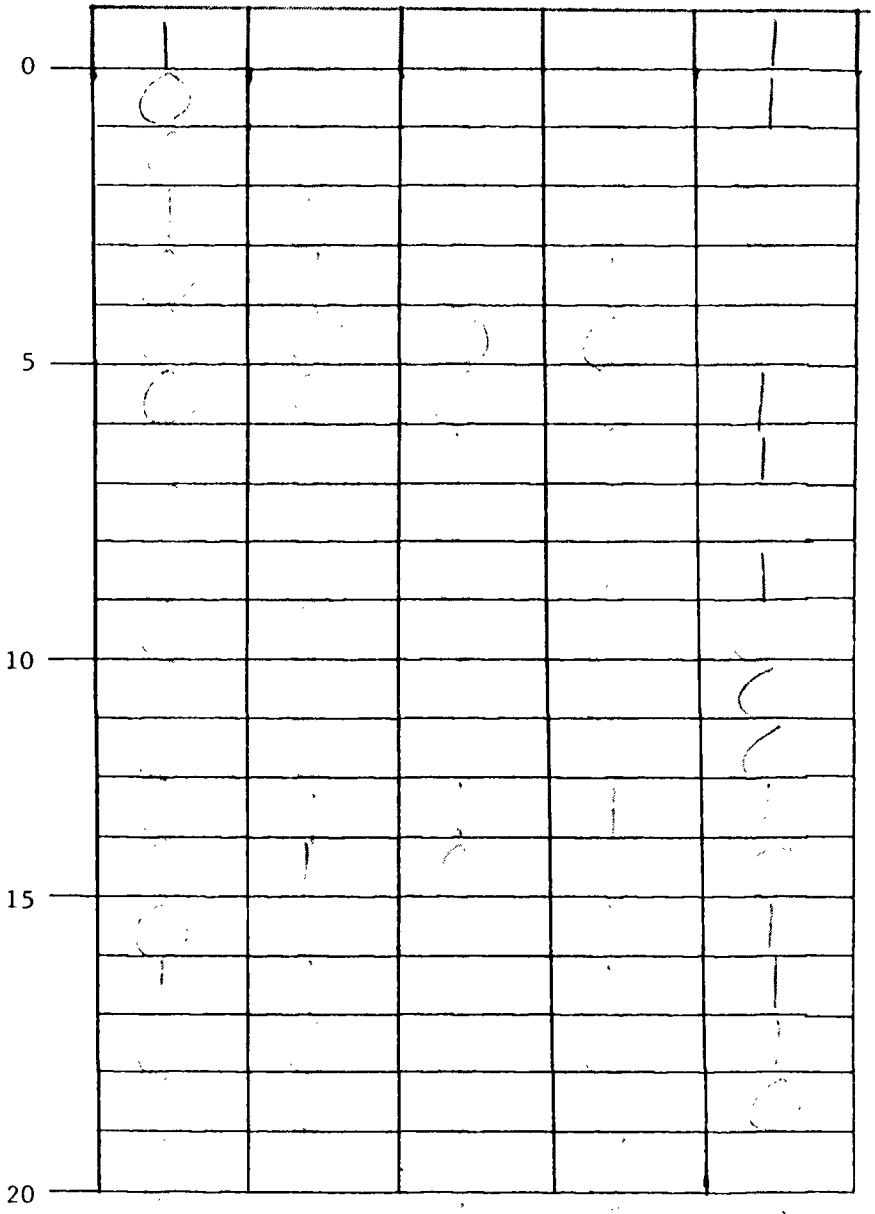
ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 416 | ELAPSED TIME (t) 90 mins.

FLOW RATE 1.9 1/min | VOLUME (V) 171 liters

FIELD AREA (a) .00432 mm^2 | BLANK COUNT (b) .03 fibers/field

FILTER AREA (A) 855 mm^2 | AV. FIBER COUNT (f) .25 fibers/field



SUBTOTALS

TOTAL 25

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

Fiber Concentration $(F) = \frac{k\ (f-b)}{V} = \frac{198(.25-.03)}{171} = .25$

SGP 0021719

Date: 5-20-76

ASBESTOS FIBER COUNT WORKSHEET

SAMPLE NO. 428 Blank

ELAPSED TIME (t) _____ mins.

FLOW RATE _____ l/min

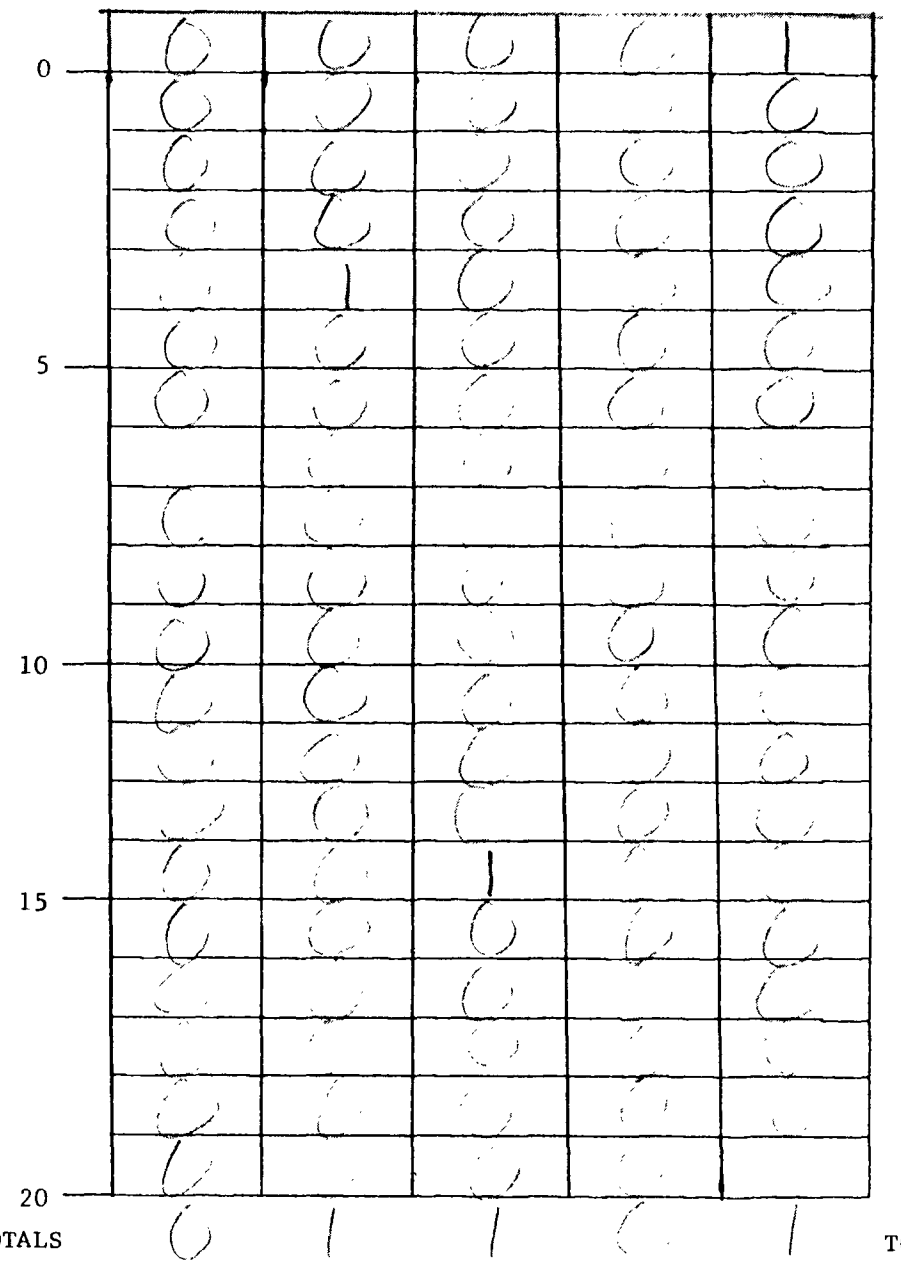
VOLUME (V) _____ liters

FIELD AREA (a) _____ mm^2

BLANK COUNT (b) _____ fibers/field

FILTER AREA (A) 855 mm^2

AV. FIBER COUNT (f) _____ fibers/field



SUBTOTALS	0	1	1	0	1	TOTAL 3

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

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

SGP 0021720