

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department: INSULATORS Bldg. 121 Date 8-21-72 Time 10⁰⁰AM
 Sampled By: PERRY Analyzed By: PERRY Method: 58C-2914-R1

General Conditions: CLEANING UP THE DEBRIS FROM A KAYLO TEAR OUT JOB
ON A VESSEL INSIDE BLDG 121 IN THE NORTH EAST CORNER OF THE
GROUND FLOOR. MATERIAL IS SWEEP INTO PILES AND SHOULED &
INTO PLASTIC BAGS HELD OPEN BY TWO MEN. THERE IS A
CONSIDERABLE AMOUNT OF DUST INVOLVED IN THIS CLEANUP METHOD.

FIBER COUNT (Fibers > 5 μ in Length)

Slide 1		Slide 2	
1	<u>3</u>	1	<u>2</u>
2	<u>0</u>	2	<u>3</u>
3	<u>3</u>	3	<u>1</u>
4	<u>5</u>	4	<u>4</u>
5	<u>1</u>	5	<u>3</u>
6	<u>2</u>	6	<u>3</u>
7	<u>7</u>	7	<u>2</u>
8	<u>2</u>	8	<u>3</u>
9	<u>1</u>	9	<u>0</u>
10	<u>2</u>	10	<u>1</u>
Total	<u>48</u>	Total	<u>40</u>
Avg.	<u>2.4</u>	Avg.	<u>2.0</u>

CALCULATIONS

SAMPLE VOLUME: 12 Min. @ 1.8 LPM = 21.6 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(2.4 - 0)(855)}{(0.01496)(21.6)(1000)} = 6.35 \text{ Fibers per Milliliter} > 5\mu$$

$$2. \frac{(2.0 - 0)(855)}{(0.01496)(21.6)(1000)} = 5.29 \text{ Fibers per Milliliter} > 5\mu$$

avg 6 FIBERS

Special Conditions: _____

Remarks: INSULATOR - JACK ROBINSON

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 121 Date 8-21-72 Time 10 15/AmSampled By: PERRY Analyzed By: PERRY Method: 38C-29X4-R1General Conditions: TEARING OUT AND CLEANING UP KAYLO INSULATION.INSULATOR - JACK ROBINSONFIBER COUNT (Fibers > 5 μ in Length)

Slide 1		Slide 2	
1 <u>5</u>	11 <u>4</u>	1 <u>2</u>	11 <u>0</u>
2 <u>0</u>	12 <u>4</u>	2 <u>7</u>	12 <u>2</u>
3 <u>2</u>	13 <u>5</u>	3 <u>5</u>	13 <u>6</u>
4 <u>4</u>	14 <u>7</u>	4 <u>0</u>	14 <u>5</u>
5 <u>2</u>	15 <u>5</u>	5 <u>5</u>	15 <u>6</u>
6 <u>7</u>	16 <u>3</u>	6 <u>3</u>	16 <u>1</u>
7 <u>5</u>	17 <u>3</u>	7 <u>1</u>	17 <u>3</u>
8 <u>4</u>	18 <u>4</u>	8 <u>2</u>	18 <u>5</u>
9 <u>3</u>	19 <u>5</u>	9 <u>1</u>	19 <u>3</u>
10 <u>2</u>	20 <u>2</u>	10 <u>3</u>	20 <u>2</u>
Total <u>76</u>	Avg <u>3.8</u>	Total <u>60</u>	Avg <u>3</u>

CALCULATIONS

SAMPLE VOLUME: 14 Min. @ 1.8 LPM = 25.2 LITERS
$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(3.8 - 0)(855)}{(0.01496)(25.2)(1000)} =$$

8.62 Fibers per Milliliter > 5 μ

$$2. \frac{(3.0 - 0)(855)}{(0.01496)(25.2)(1000)} =$$

6.80 Fibers per Milliliter > 5 μ

avg 8 FIBERS

Special Conditions: _____

Remarks: _____

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 126 Date 8-21-72 Time 10 30 AMSampled By: PERRY Analyzed By: PERRY Method: 38C-29X4-R1General Conditions: TEARING OUT AND CLEANING UP KAYLO
INSULATIONINSULATOR - W. E. WILLIAMSFIBER COUNT (Fibers > 5 μ in Length)

Slide 1		Slide 2	
1	<u>4</u>	1	<u>4</u>
2	<u>5</u>	2	<u>1</u>
3	<u>5</u>	3	<u>0</u>
4	<u>5</u>	4	<u>2</u>
5	<u>2</u>	5	<u>8</u>
6	<u>1</u>	6	<u>5</u>
7	<u>3</u>	7	<u>8</u>
8	<u>1</u>	8	<u>7</u>
9	<u>1</u>	9	<u>4</u>
10	<u>2</u>	10	<u>3</u>
11	<u>2</u>	11	<u>2</u>
12	<u>4</u>	12	<u>12</u>
13	<u>7</u>	13	<u>3</u>
14	<u>6</u>	14	<u>0</u>
15	<u>1</u>	15	<u>3</u>
16	<u>3</u>	16	<u>3</u>
17	<u>3</u>	17	<u>3</u>
18	<u>4</u>	18	<u>5</u>
19	<u>6</u>	19	<u>1</u>
20	<u>5</u>	20	<u>7</u>
Total	<u>68</u>	Total	<u>81</u>
Avg	<u>3.4</u>	Avg	<u>4.05</u>

CALCULATIONS

SAMPLE VOLUME: 10 Min. @ 1.8 LPM = 18 LITERS
$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(3.4 - 0)(855)}{(0.01496)(18)(1000)} =$$

10.79 Fibers per Milliliter > 5 μ

$$2. \frac{(4.05 - 0)(855)}{(0.01496)(18)(1000)} =$$

12.86 Fibers per Milliliter > 5 μ

Avg. = 12 FIBERS

Special Conditions: _____

Remarks: _____

UCTC 09140

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 121 Date 8-21-72 Time 10 41 AMSampled By: PERRY Analyzed By: PERRY Method: 3BC-29X4-R1General Conditions: CLEANUP OF DEBRIS FROM INSULATION TEAR OUT
NORTHEAST CORNER FIRST FLOOR OF BLDG 121INSULATOR: W.E. WILLIAMSFIBER COUNT (Fibers > 5 μ in Length)

Slide 1		Slide 2	
1	<u>4</u>	1	<u>4</u>
2	<u>3</u>	2	<u>8</u>
3	<u>8</u>	3	<u>5</u>
4	<u>2</u>	4	<u>4</u>
5	<u>11</u>	5	<u>8</u>
6	<u>2</u>	6	<u>5</u>
7	<u>11</u>	7	<u>3</u>
8	<u>4</u>	8	<u>7</u>
9	<u>1</u>	9	<u>5</u>
10	<u>3</u>	10	<u>5</u>
11	<u>6</u>	11	<u>7</u>
12	<u>5</u>	12	<u>4</u>
13	<u>6</u>	13	<u>12</u>
14	<u>5</u>	14	<u>9</u>
15	<u>3</u>	15	<u>4</u>
16	<u>4</u>	16	<u>5</u>
17	<u>6</u>	17	<u>10</u>
18	<u>6</u>	18	<u>4</u>
19	<u>0</u>	19	<u>12</u>
20	<u>4</u>	20	<u>9</u>
Total	<u>94</u>	Total	<u>130</u>
Avg.	<u>4.7</u>	Avg.	<u>6.5</u>

CALCULATIONS

SAMPLE VOLUME: 17 Min. @ 1.8 LPM = 30.6 LITERS
$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(4.7 - 0)(855)}{(0.01496)(30.6)(1000)} =$$

8.78

Fibers per Milliliter > 5 μ

$$2. \frac{(6.5 - 0)(855)}{(0.01496)(30.6)(1000)} =$$

12.14

Fibers per Milliliter > 5 μ

Avg. - 10 FIBERS

Special Conditions: _____

Remarks: _____

UCTC 09141

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department: INSULATORS Bldg. 110 Date 8-18-72 Time 10¹⁵ AM
10⁴⁵ AM
 Sampled By: PERRY Analyzed By: PERRY Method: 38C-29X4-R1
 General Conditions: KAYLO INSULATION BEING REMOVED FROM THE
COLUMN SHELL. CARE IS EXERCISED IN REMOVAL TO KEEP
FROM DAMAGING THE KAYLO BLOCKS. STRONG SE WINDS 10-12MPH
INSULATOR - R.F. ROBERTS

FIBER COUNT (Fibers > 5µ in Length)

<u>Slide 1</u>		<u>Slide 2</u>	
<u>SAMPLE #1 @ 10¹⁵ AM</u>		<u>SAMPLE #2 @ 10⁴⁵ AM</u>	
1 <u>1</u>	11 <u>0</u>	1 <u>1</u>	11 <u>0</u>
2 <u>2</u>	12 <u>1</u>	2 <u>0</u>	12 <u>0</u>
3 <u>1</u>	13 <u>0</u>	3 <u>3</u>	13 <u>1</u>
4 <u>0</u>	14 <u>2</u>	4 <u>1</u>	14 <u>0</u>
5 <u>1</u>	15 <u>1</u>	5 <u>0</u>	15 <u>0</u>
6 <u>0</u>	16 <u>1</u>	6 <u>1</u>	16 <u>1</u>
7 <u>4</u>	17 <u>0</u>	7 <u>2</u>	17 <u>0</u>
8 <u>1</u>	18 <u>0</u>	8 <u>1</u>	18 <u>1</u>
9 <u>0</u>	19 <u>1</u>	9 <u>0</u>	19 <u>0</u>
10 <u>0</u>	20 <u>1</u>	10 <u>0</u>	20 <u>0</u>
Total <u>17</u>	Avg. <u>0.85</u>	Total <u>12</u>	Avg. <u>0.60</u>

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 1.6 LPM = 24 LITERS

$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air-Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$

$$1. \frac{(0.85 - 0)(855)}{(0.01496)(24)(1000)} = 2.0$$

Fibers per Milliliter > 5µ

$$2. \frac{(0.60 - 0)(855)}{(0.01496)(24)(1000)} = 1.4$$

Fibers per Milliliter > 5µ

Special Conditions: _____

Remarks: SLIDE 1 + 2 REPRESENT TWO IDENTICAL SAMPLES ON
THE SAME INSULATOR. CONDITIONS WERE EXACTLY THE SAME FOR
BOTH SAMPLES.

UCTC 09142

PLAINTIFF'S EXHIBIT

INDUSTRIAL HYGIENE DEPARTMENT ASBESTOS DUST STUDY

Department INSULATORS Bldg. 121 Date 8-21-72 Time 10³⁰AM

Sampled By: PERRY Analyzed By: PERRY Method: 38C-2914-R1

General Conditions: CLEANING UP THE PEARLS FROM A KAYLO TEAR OUT JOB
ON A VESSEL INSIDE BLDG 121 IN THE NORTH EAST CORNER OF THE
GROUND FLOOR. MATERIAL IS SWEEP INTO PILES AND SHOULED &
INTO PLASTIC BAGS HELD OPEN BY TWO MEN. THERE IS A
CONSIDERABLE AMOUNT OF DUST INVOLVED IN THIS CLEANUP METHOD.

FIBER COUNT (Fibers > 5μ in Length)

Slide 1		Slide 2	
1 <u>3</u>	11 <u>3</u>	1 <u>2</u>	11 <u>0</u>
2 <u>0</u>	12 <u>0</u>	2 <u>3</u>	12 <u>0</u>
3 <u>3</u>	13 <u>1</u>	3 <u>1</u>	13 <u>3</u>
4 <u>5</u>	14 <u>5</u>	4 <u>4</u>	14 <u>5</u>
5 <u>1</u>	15 <u>2</u>	5 <u>3</u>	15 <u>0</u>
6 <u>2</u>	16 <u>1</u>	6 <u>3</u>	16 <u>2</u>
7 <u>7</u>	17 <u>3</u>	7 <u>2</u>	17 <u>2</u>
8 <u>2</u>	18 <u>3</u>	8 <u>3</u>	18 <u>1</u>
9 <u>1</u>	19 <u>1</u>	9 <u>0</u>	19 <u>4</u>
10 <u>2</u>	20 <u>3</u>	10 <u>1</u>	20 <u>1</u>
Total <u>48</u>	Avg. <u>2.4</u>	Total <u>40</u>	Avg. <u>2.0</u>

CALCULATIONS

SAMPLE VOLUME: 12 Min. @ 1.8 LPM = 21.6 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(2.4 - 0)(855)}{(0.01496)(21.6)(1000)} =$$

6.35 Fibers per Milliliter > 5μ

avg 6 FIBERS

$$2. \frac{(2.0 - 0)(855)}{(0.01496)(21.6)(1000)} =$$

5.29 Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: INSULATOR - JACK ROBINSON

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 121 Date 8-21-72 Time 10 45/Am

Sampled By: PERRY Analyzed By: PERRY Method: 38C-29XA-R1

General Conditions: TEARING OUT AND CLEANING UP KAYLO INSULATION.

INSULATOR - JACK ROBINSON

FIBER COUNT (Fibers > 5μ in Length)

Slide 1	
1	<u>5</u>
2	<u>0</u>
3	<u>2</u>
4	<u>4</u>
5	<u>2</u>
6	<u>7</u>
7	<u>5</u>
8	<u>4</u>
9	<u>3</u>
10	<u>2</u>
Total <u>76</u>	
Avg. <u>3.8</u>	

Slide 2	
1	<u>2</u>
2	<u>7</u>
3	<u>5</u>
4	<u>0</u>
5	<u>5</u>
6	<u>3</u>
7	<u>1</u>
8	<u>2</u>
9	<u>1</u>
10	<u>3</u>
Total <u>60</u>	
Avg. <u>3</u>	

CALCULATIONS

SAMPLE VOLUME: 14 Min. @ 1.8 LPM = 25.2 LITERS

$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$

$$1. \frac{(3.8 - 0)(855)}{(0.01496)(25.2)(1000)} =$$

8.62 Fibers per Milliliter > 5μ

$$2. \frac{(3.0 - 0)(855)}{(0.01496)(25.2)(1000)} =$$

6.80 Fibers per Milliliter > 5μ

avg 8 FIBERS

Special Conditions: _____

Remarks: _____

INDUSTRIAL HYGIENE DEPARTMENT

ASBESTOS DUST STUDY

Department INSULATORS Bldg. 12A Date 8-21-72 Time 10 30 AM

Sampled By: PERRY Analyzed By: PERRY Method: 38C-29X4-R1

General Conditions: TEARING OUT AND CLEANING UP KAYLO INSULATION

INSULATOR — W. E. WILLIAMS

FIBER COUNT (Fibers > 5μ in Length)

Slide 1		Slide 2	
1 <u>4</u>	11 <u>2</u>	1 <u>4</u>	11 <u>2</u>
2 <u>5</u>	12 <u>4</u>	2 <u>1</u>	12 <u>12</u>
3 <u>5</u>	13 <u>7</u>	3 <u>0</u>	13 <u>3</u>
4 <u>5</u>	14 <u>6</u>	4 <u>2</u>	14 <u>0</u>
5 <u>2</u>	15 <u>1</u>	5 <u>8</u>	15 <u>3</u>
6 <u>1</u>	16 <u>3</u>	6 <u>5</u>	16 <u>3</u>
7 <u>3</u>	17 <u>3</u>	7 <u>8</u>	17 <u>3</u>
8 <u>1</u>	18 <u>4</u>	8 <u>7</u>	18 <u>5</u>
9 <u>1</u>	19 <u>6</u>	9 <u>4</u>	19 <u>1</u>
10 <u>2</u>	20 <u>5</u>	10 <u>3</u>	20 <u>7</u>
Total <u>68</u>	Avg <u>3.4</u>	Total <u>81</u>	Avg <u>4.05</u>

CALCULATIONS

SAMPLE VOLUME: 10 Min. @ 1.8 LPM = 18 LITERS

$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$

$$1. \frac{(3.4 - 0)(855)}{(0.01496)(18)(1000)} =$$

10.79 Fibers per Milliliter > 5μ

$$2. \frac{(4.05 - 0)(855)}{(0.01496)(18)(1000)} =$$

12.86 Fibers per Milliliter > 5μ

avg = 12 FIBERS

Special Conditions: _____

Remarks: _____

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department INSULATORS Bldg. 121 Date 8-21-72 Time 10 41 AM

Sampled By: PERRY Analyzed By: PERRY Method: 38C-29X4-R1

General Conditions: CLEANUP OF DEBRIS FROM INSULATION TEAR OUT
NORTHEAST CORNER FIRST FLOOR OF BLDG 121

INSULATOR: W.E. WILLIAMS

FIBER COUNT (Fibers > 5µ in Length)

Slide 1		
1	<u>4</u>	11 <u>6</u>
2	<u>3</u>	12 <u>5</u>
3	<u>8</u>	13 <u>6</u>
4	<u>2</u>	14 <u>5</u>
5	<u>11</u>	15 <u>3</u>
6	<u>2</u>	16 <u>4</u>
7	<u>11</u>	17 <u>6</u>
8	<u>4</u>	18 <u>6</u>
9	<u>1</u>	19 <u>0</u>
10	<u>3</u>	20 <u>4</u>
Total	<u>94</u>	Avg. <u>4.7</u>

Slide 2		
1	<u>4</u>	11 <u>7</u>
2	<u>8</u>	12 <u>4</u>
3	<u>5</u>	13 <u>12</u>
4	<u>4</u>	14 <u>9</u>
5	<u>8</u>	15 <u>4</u>
6	<u>5</u>	16 <u>5</u>
7	<u>3</u>	17 <u>10</u>
8	<u>7</u>	18 <u>4</u>
9	<u>5</u>	19 <u>12</u>
10	<u>5</u>	20 <u>9</u>
Total	<u>130</u>	Avg. <u>6.5</u>

CALCULATIONS

SAMPLE VOLUME: 17 Min. @ 1.8 LPM = 30.6 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air - Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

1.
$$\frac{(4.7 - 0)(855)}{(0.01496)(30.6)(1000)} =$$

8.78

Fibers per Milliliter > 5µ

2.
$$\frac{(6.5 - 0)(855)}{(0.01496)(30.6)(1000)} =$$

12.14

Fibers per Milliliter > 5µ

avg. - 10 FIBERS

Special Conditions: _____

Remarks: _____

INDUSTRIAL HYGIENE DEPARTMENT
ASBESTOS DUST STUDY

Department: INSULATORS Bldg. 110 Date 8-18-72 Time 10:15 AM
10:45 AM

Sampled By: PERRY Analyzed By: PERRY Method: 38C-29X4-R1

General Conditions: KAYLO INSULATION BEING REMOVED FROM THE
COLUMN SHELL. CARE IS EXERCISED IN REMOVAL TO KEEP
FROM DAMAGING THE KAYLO BLOCKS. STRONG SE WINDS 10-12 MPH
INSULATOR - R.F. ROBERTS

FIBER COUNT (Fibers > 5μ in Length)

Slide 1	SAMPLE #1 @ 10:45 AM
1	1
2	2
3	1
4	0
5	1
6	0
7	4
8	1
9	0
10	0
11	0
12	1
13	0
14	2
15	1
16	1
17	0
18	0
19	1
20	1
Total	17
Avg.	0.85

Slide 2	SAMPLE #2 @ 10:45 AM
1	1
2	0
3	3
4	1
5	0
6	1
7	2
8	1
9	0
10	0
11	0
12	0
13	1
14	0
15	0
16	1
17	0
18	1
19	0
20	0
Total	12
Avg.	0.60

CALCULATIONS

SAMPLE VOLUME: 15 Min. @ 1.6 LPM = 24 LITERS

$$\frac{(\text{Avg. Fiber Count} - \text{Avg. Blank Count})(\text{Total Filter Area})}{(\text{Counting Area})(\text{Vol. Air} - \text{Liters})(1000)} = \text{Concentration, Fibers per Milliliter} > 5\mu$$

$$1. \frac{(0.85 - 0)(855)}{(0.01496)(24)(1000)} = 2.0$$

Fibers per Milliliter > 5μ

$$2. \frac{(0.60 - 0)(855)}{(0.01496)(24)(1000)} = 1.1$$

Fibers per Milliliter > 5μ

Special Conditions: _____

Remarks: SLIDE 1 + 2 REPRESENT TWO IDENTICAL SAMPLES ON
THE SAME INSULATOR. CONDITIONS WERE EXACTLY THE SAME FOR
BOTH SAMPLES.

