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PLAINTIFF'S EXHIBIT SCO-54

ASBESTOS MONITORING

Topics

1. Where is asbestos in our production facilities?
2. Why is asbestos monitoring needed?
3. How is asbestos monitoring performed?
4. What are the monitoring results?
5. What are our concerns?
6. Summary

~~Where Is Asbestos Found~~

Where is asbestos in our production facilities?

Asbestos is an inert in the raw vermiculite ore. Tests have proven that it is primarily in the Libby Montana ore in quantities less than one percent.

Lesser amounts are found in the South Carolina and Virginia sources.

South African sources claim no asbestos - we find this almost true.

~~Why Is Monitoring of Asbestos Needed~~

Why is asbestos monitoring needed?

Asbestos is a known carcinogen, therefore, we are primarily concerned for the health of our associates.

OSHA regulations.

Identify problem areas, such as: leaks in equipment.

Past and present OSHA standards are:

1946 - 1971 20 fibers/cc 8 hr. TWA

(48,000,000 fibers/8 hrs.)

1971 - 1972 12 fibers/cc 8 hr. TWA

(28,800,000 fibers/8 hrs.)

1972 - 1976 5 fibers/cc 8 hr. TWA

(12,000,000 fibers/ 8 hrs.)

1976 - Present 2 fibers/cc 8 hr. TWA

(4,~~048~~800,000 fibers/8hrs.)

NIOSH is now suggesting that OSHA develop a standard which will regulate asbestos fibers to 0.1 fibers/cc for an eight hour TWA. This standard would allow for 30,000 fibers to be inhaled in an eight hour day.

Note: ~~This~~ it takes approximately 5,000 fibers, 5 micrometers in length to equal one inch.

How Is Asbestos Monitoring Performed?

To obtain an eight hour personnel exposure as required by OSHA, sampling pump and membrane filter is used.

This is worn by associate for an eight hour period with the filters changed from one to five times during this period.

Filters are sent to outside laboratory for fiber count analysis.

Results of these analyses are received four to eight weeks later.

This is the same sampling arrangement used by OSHA approximately a year and a half ago in our plant.

Listed below are the pros and cons of this type monitoring:

Pros:

Shows actual associate exposure.

Results are for fibers as expressed in NIOSH indentification procedure.

Cons:

Very difficult to use for identifying problem areas.

Lag time from obtaining sample until results are reported.

The fiberous aerosol monitor is the newest piece of equipment utilized in aerosol asbestos monitoring.

Used for surveys by NIOSH.

W. R. Grace has recently ordered.

Pros:

Can obtain almost instant results.

May sample and record for extended periods of time and different operations.

No four to eight week waiting period for results

Cons:

Counts all fibers including non-asbestos.

Cannot be utilized as actual personnel exposure.

What Are The Monitoring Results?

1972 ~3.0 fibers/cc.

1973 ~ 4.0 fibers/cc.

1975 ~3.0 fibers/cc.

Early 1976 ~2.0 fibers/cc.

Mid 1976 ~ 1.0 fiber/cc.

1977 ~1.0 fibers/cc.

1978 ~ 0.50 fibers/cc.

1979 ~0.3 fibers/cc.

1980 ~ 0.3 fibers/cc.

Should be noted that approximately $200,000 was spent in the 1976-1977 time frame to better contain the asbestos fibers.

In addition, our suppliers have made improvements in the vermiculite processing.

A greater percent of African vermiculite has also been used, which has aided in reducing the asbestos fibers.

What Are Our Concerns?

If OSHA regulations are lowered to 0.1 fiber/cc - we may have problems meeting the standard.

Summary

Continual search for vermiculite with less asbestos.

Monitor plant environment for actual levels of asbestos.

Vermiculite expanding and handling equipment must be maintained very well to minimize fiber emmissions to working environment.

Monitor NIOSH/OSHA proposed regulations.

Research alternatives to vermiculite as a carrier.

ASBESTOS MONITORING

Points to be Covered

1. Where is asbestos in our production facilities?
2. Why is asbestos monitoring needed?
3. How is asbestos monitoring needed?
4. New measuring capability.
5. What are the monitoring results?
6. What are our concerns?
7. Summary

1. Where is asbestos in our production facilities?

Inert in the raw vermiculite, primarily in the Libby Montana ore.

Some in South Carolina and Virginia.

South African claims none.

2. Why is asbestos monitoring needed?

- Known carcinogen.
- Health concern.
- OSHA regulations.

Identify problem areas:

Past and present OSHA standards are:

1946 - 1971 20 fibers/cc 8 hr. TWA
(48,000,000 fibers/8 hrs.)
1971 - 1972 12 fibers
(28,800,000 fibers)
1972 - 1976 5 fibers
(12,000,000 fibers)
1976 - Present 2 fibers
(4,800,000 fibers)
NIOSH suggesting 0.1 fibers
(30,000 fibers)
Note: 5,000 fibers = 1 inch

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NIOSH is now suggesting that OSHA develop a standard which will regulate asbestos fibers to 0.1 fibers/cc for an eight hour TWA. This standard would allow for 30,000 fibers to be inhaled in an eight hour day. 0.1 fibers/cc is the lowest economically feasible detection limit. Large manufacturers are taking issue with this recommendation. Note, it takes approximately 5,000 fibers, 5 micrometers in length to equal one inch.

3. How is asbestos monitoring performed?

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4. New measuring capability.

The fiberous aerosol monitor is the newest piece of equipment utilized in aerosol asbestos monitoring.

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Pros:

Can obtain almost instant results.

May sample and record for extended periods of time and different operations.

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Pros: (cont'd)

No four to eight week waiting period for results.

Cons:

Counts all fibers including non-asbestos.

Cannot be utilized as actual personnel exposure.

5. What are the monitoring results?

1972 ~ 3.0 fibers/cc.
1973 ~ 4.0 fibers/cc.
1975 ~ 3.0 fibers/cc.
Early 1976 ~ 2.0 fibers/cc.*
Mid 1976 ~ 1.0 fibers/cc.*
1977 ~ 1.0 fibers/cc.*
1978 ~ 0.50 fibers/cc.
1979 ~ 0.3 fibers/cc.
1980 ~ 0.3 fibers/cc.

*Should be noted that approximately $200,000 was spent in the 1976-1977 time frame to better contain the asbestos fibers.

In addition, our suppliers have made improvements in the vermiculite processing.

A greater percent of African vermiculite has also been used, which has aided in reducing the asbestos fibers. (Approximately 50% in 1979.)

6. What are our concerns?

If OSHA regulations are lowered to 0.1 fibers/cc - we may have problems meeting the standard.

7. Summary.

Our Progress

1972 - 3.0 fibers/cc.
1980 - 0.3 fibers/cc.

Our Challenge

1983?- 0.1 fibers/cc.

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Lesser amounts are found in the South Carolina and Virginia sources.

South African sources claim no asbestos - we find this almost true.

2. Why is asbestos monitoring needed?

Asbestos is a known carcinogen, therefore, we are primarily concerned for the health of our associates.

OSHA regulations.

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1976 - Present 2 fibers/cc 8 hr. TWA
(4,800,000 fibers/8 hrs.)

3. How is asbestos monitoring performed?

Sampling pump and membrane.
Worn by associate for an eight hour period.
Analysis by outside laboratory.
Require four to eight weeks.
Same sampling arrangement used by OSHA.

Pros and cons of this type monitoring:

Pros:

Actual exposure.
Results are for fibers expressed in NIOSH identification procedure.

Cons:

Difficult to use for identifying specific problem areas.

4. New measuring capability.

Fiberous aerosol monitor.
Used for surveys by NIOSH.
W. R. Grace has recently ordered.

Pros:

Obtain almost instant results.
May sample and record for extended periods.
No four to eight week waiting period for results.

Cons:

Counts all fibers including non-asbestos.
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5. What are the monitoring results?

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Mid 1976 ~ 1.0 fibers/cc.*
1977 ~ 1.0 fibers/cc.*
1978 ~ 0.50 fibers/cc.
1979 ~ 0.3 fibers/cc.
1980 ~ 0.3 fibers/cc.

*$200,000 was spent for containing.

Suppliers have made improvements in the vermiculite processing.

More African has been used.

6. What are our concerns?

0.1 fibers/cc.

7. Summary.

Our Progress

1972 - 3.0 fibers/cc.

1980 - 0.3 fibers/cc.

Our Challenge

1983? - 0.1 fibers/cc.

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