FILE NAME: Asbestos Cement Pipe and Sheet (ACPS)

DATE: мфсу CŜō нс

DOC#: ACPS0pм

5h / ¦ MENT DESCRIPTION: ¦ yŁJdzōfλăKŜŘ wŜLJƨℕűπ ² l·úŜℕ /ƨyűl·Yλyl·ûλƨy {űdzŘλŜă

Pipe

Environmental Control Department
Research & Engineering Center
February 26, 1968

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W. P. Raines - GHQ

Water Contamination Studies
Asbestos-Cement Pipe
San Diego

Attached are some figures on ingestion based on San Diego study results, and on inhalation based on the proposed British Threshold Limit Value of two fibers per cubic centimeter.

As you can see, we are dealing with very minute quantities. Ingestion quantity per day is well below inhalation at TLV per day.

While this comparison is interesting, I don't think it is quotable. We are comparing apples and oranges. The TLV for inhalation is known; the TLV for ingestion is not.

E. M. Fenner

EMF/ems

Attach.

cc: F. L. Pundsack
S. Speil
Att: J. P. Leineweber
J. H. Swensen
Att: J. F. Herr
File
C

TLV = Threshold Limit Value

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Water Contamination Studies
San Diego, California

Potable water after two miles through a 17-year old asbestos-cement pipe system had a fiber content increase from .03 micrograms per gallon to 4.0 micrograms per gallon.

1 microgram = 1×10^{-6} grams (.000001 grams)
1 microgram = 2.2×10^{-9} pounds (.0000000022 lbs)

Assume average daily water consumption is eight glasses, or ½ gallon per day. Then daily ingestion of fiber could be:

4.4×10^{-9} lb per day
(.0000000044)

Proposed British TLV for inhalation of fiber is:

2 fibers per cc

or

5.6×10^{4} fibers per cubic foot
(56,000)

Assume average inhalation rate is 1 CFM. Then TLV =

5.6×10^{4} fibers per minute
(56,000)

Assume average respirable fiber size is

1. 1/-? x 10 -- long (one micron in diameter 6/c micron long)
2. 2/-? x 20 -- long (2 microns in diameter 6 7c microns long)

Fiber 1 would weigh: 2.2×10^{-14} lbs
Fiber 2 would weigh: 17.6×10^{-14} lbs

Then fibers inhaled per day at TLV.

1. 5.8×10^{-7} lbs per day
   (.00000058)
2. 48×10^{-7} lbs per day
   (.0000048)

* Ed's 'theoretical' -- no one knows the 'average' size of an asbestos dust particle to

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Water Contamination Studies (Cont'd.)

Comparison - inhalation vs. ingestion.

A. Inhalation

Case 1. 5.8×10^{-7} lbs per day
(.00000058)

Case 2. 48×10^{-7} lbs per day
(.0000048)

B. Ingestion

San Diego: 4.4×10^{-9} lbs per day
(.0000000044)

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