



PLAINTIFF'S EXHIBIT

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Asbestos — unseen danger all around us

WE CALL IT a mineral. Yet its fibers, remarkably resistant to heat, are soft and flexible enough to be carded, spun and woven into cloth. Asbestos is virtually immune to acids, alkalis and many other chemicals. Its microscopic particles float like dust but in their natural form are as hard and imperishable as the rock from which they come.

Nearly 200,000 Americans work directly producing asbestos materials and products, and another 3,000,000 to 5,000,000 are involved in the handling of some 3,000 different applications and things used by millions of the rest of us.

This almost indispensable substance is what makes insulation board resistant to heat and fire. Asbestos goes into some spackling and caulking compounds. It is impregnated into roofing shingles, siding, and vinyl and asphalt tiles and imbedded in electric motor casings, automobile brake linings and clutches, and certain asbestos cement products. Asbestos textiles are used in fire-resistant draperies, safety clothing, even pot holders.

Because of its importance and varied uses, asbestos has found its way into virtually every vehicle, building and home in the nation. And because its small fibers (an eyelash is 100 times thicker) sometimes become unanchored, asbestos gets into our lungs, where its presence, whether in large doses or small, has become a source of medical concern.

Scientists have shown that unprotected workers directly exposed to asbestos can develop specific lung diseases, including cancer. Fears about its effect on the general population have been strong enough

to lead the federal government to declare asbestos a hazardous air pollutant, along with beryllium and mercury.

Taking the measure of danger

IMAGINE PARTICLES often no larger than 1/25,000 inch, so tiny that they can be counted only under a special microscope. These minuscule particles can separate from the ore during mining, detach from a mixture during spraying or stirring, spin off the brakes of cars or float away when asbestos-bearing materials are sanded or broken up.

An unmasked person around dust containing asbestos will almost certainly breathe in some particles, a portion of which healthy lungs will disgorge. But if exposure is intense and persistent enough, eventually some fibers will escape the lungs' cleansing cilia. The smaller the particles, the likelier they are to lodge and remain in the deeper recesses.

The adverse biological effects of asbestos have been known since the 1920's, when it was first shown that unprotected asbestos workers often came down with a disabling or fatal lung-scarring disease called asbestosis. In the 1950's it was found that mesothelioma, an invariably malignant tumor of the lining of the lung or abdominal cavity, could also occur in family contacts who had merely handled asbestos workers' dusty clothing. Asbestos insulation workers who smoked were about 90 times likelier to develop ordinary lung cancer than nonsmokers with no known exposure to asbestos.

It can take a long time for an asbestos-related

disease to develop, sometimes 20 to 30 years. Those fatal cases of the 1900's and 1930's were really exploding time bomb. At ticking before the turn of the century when nobody knew or cared to find out much about the effect of asbestos on health. Safeguards have since been instituted requiring, among other things, respirator face masks for asbestos workers and better ways of controlling dust and disposing of wastes. Now there also are protections for workers indirectly involved, such as those handling insulation.

The question is, how much asbestos is too much? An Occupational Safety and Health Administration standard permitting an average exposure level of no more than five fibers of a specific size per cubic centimeter of air where asbestos is manufactured or processed was tightened this summer to permit just two fibers in the same volume of air, about a thimblefull.

Should the limit be even lower? An OSHA proposal would reduce allowable fibers to 0.5 per cc of air, but the industry's Asbestos Information Association says, "There is no credible medical evidence to indicate that the two-fiber standard will not be adequate to protect the health of employees."

Keeping an accurate check on the amount of asbestos fibers isn't practical in some places because the fibers are so difficult to measure, although steps can be taken to control unnecessary contamination. Because of objections by the International Ladies Garment Workers Union, for example, asbestos is no longer used to strengthen wool imported for use in coats. And in the New York City area, voluntary agreements between the United Auto Workers and many auto dealers enable mechanics to vacuum up loose asbestos from brake linings instead of blowing it into the shop with compressed air.

Asbestos in the drinking water?

IN MAY, at the climax of a stormy court battle begun by the Environmental Protection Agency four years ago, a federal judge fined Reserve Mining Co. of Minnesota and its parent concerns more than \$1,000,000 for polluting Lake Superior near Duluth. EPA had charged that asbestos fibers found in Duluth's drinking water originated from 67,000 tons of ground waste rock the company discharged daily into the lake. A month earlier EPA disclosed that a two-year study revealed asbestos fibers in the water supplies of Boston, Philadelphia, Atlanta, San Francisco and Seattle. Samplings have been taken for 20 other cities.

In some cities asbestos showed up at one time but not at others. Not much is known about the sources of the contamination. Part of it could be natural, since asbestos comes from the same kinds of rocks

that yield iron, lead and tin. The effects of swallowing asbestos fibers are not really known either, although the suspicion is they cannot be good, and several federally supported studies are seeking to determine the biological hazards to animals. To date, there is no government standard on maximum allowable asbestos levels in drinking water.

Is any place safe?

FREE-FLOATING asbestos fibers can be found in the air of any busy metropolitan area and sometimes crop up indoors. Before 1973 a dry spray form of asbestos was used as fireproofing material in many public offices and buildings. If no sealant was applied over it and the asbestos is accidentally struck or damaged, fibers can become detached and drift into building ventilating systems, as they did in a Wyoming school, a university library and a California courthouse, to cite a few instances.

A recent EPA rule all but prohibits this kind of asbestos spraying. In addition, EPA limits the visible emissions from asbestos-products industries, and when buildings are renovated or demolished, it requires materials likely to contain asbestos to be dismantled with care, wet down periodically and lowered from upper floors in containers, not dropped so that dust spreads into city air. There is no EPA numerical limit on air contamination from asbestos.

Fibrous contamination has been measured during simulated home fix-up jobs in which common commercial spackling, caulking and adhesive compounds are mixed, then used to seal cracks and seams in wallboard. The study, headed by Dr. I. J. Selikoff of Mt. Sinai School of Medicine in New York City, a pioneer in asbestos research, showed that the mixing and sanding process produced fiber counts seven to 12 times higher than the previous five-fiber count allowable for industrial exposure.

Whatever the risk, nearly everybody agrees on one thing: The less exposure to asbestos dust, the better. If your job involves handling asbestos-bearing products and materials, obey all the safety rules that have been set up. If your contact is indirect or occasional, you can help reduce exposure these commonsense ways:

- Point out to municipal authorities possible violations at demolition projects of EPA's contamination-control rules.
- Buy premixed spackling, jointing and patching compounds if possible. Products without asbestos are now available, too.
- Use a damp cloth to smooth compounds before they set instead of sanding them after they harden. When raising dust is unavoidable, wear a respirator face mask.