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TOXIC SUBSTANCES CONTROL ACT OF 1973

HEARINGS BEFORE THE **ENVIRONMENT SUBCOMMITTEE** OF THE **COMMITTEE ON COMMERCE** **UNITED STATES SENATE** NINETY-THIRD CONGRESS

FIRST SESSION

ON

S. 426 and Amendments 1, 8, and 9

TO REGULATE INTERSTATE COMMERCE BY REQUIRING PRE-MARKET TESTING OF NEW CHEMICAL SUBSTANCES AND TO PROVIDE FOR SCREENING OF THE RESULTS OF SUCH TESTING PRIOR TO COMMERCIAL PRODUCTION, TO REQUIRE TESTING OF CERTAIN EXISTING CHEMICAL SUBSTANCES, TO AUTHORIZE THE REGULATION OF THE USE AND DISTRIBUTION OF CHEMICAL SUBSTANCES, AND FOR OTHER PURPOSES

S. 888

TO BE KNOWN AS THE TOXIC SUBSTANCES CONTROL ACT OF 1973

FEBRUARY 23, 26, AND MARCH 21, 1973

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TOXIC SUBSTANCES CONTROL ACT OF 1973

FRIDAY, FEBRUARY 23, 1973

U.S. SENATE,
COMMITTEE ON COMMERCE,
SUBCOMMITTEE ON THE ENVIRONMENT,
Washington, D.C.

The subcommittee met at 10 a.m., in room 5110, New Senate Office Building, Hon. John V. Tunney presiding.

OPENING STATEMENT BY SENATOR TUNNEY

Senator TUNNEY. This morning the Subcommittee on the Environment begins 3 days of hearings designed to control toxic substances. Two bills are under consideration. I was pleased to join with the distinguished chairman of the Committee on Commerce, Senator Magnuson, and the distinguished chairman of this subcommittee, Senator Hart, in introducing S. 426, entitled the "Toxic Substances Control Act of 1973."

We are also pleased to have an administration bill, S. 888, before this subcommittee. In addition, three amendments to S. 426 have been introduced, dealing with: (1) Indemnities under this legislation and the Federal Environmental Pesticide Control Act; (2) The relationship of the Environmental Protection Agency to the Office of the Management and Budget; and (3) The monitoring of our Nation's food supply for the presence of dangerous materials.

These three amendments will also be considered in these hearings.

The purpose of these hearings is to hear the testimony of concerned environmental and public interest groups, the administration, and the chemical industry concerning the substance of the legislation under consideration. In addition, we will hear testimony today and Monday about two environmental contaminants which I feel will be candidates for regulation under this legislation.

Today, scientists will present evidence of the pervasiveness and the hazardous nature of asbestos. Asbestos is an excellent example of a material with a myriad number of uses and problems.

On Monday, the witnesses will testify as to the hazards of the heavy metal, cadmium. Although a great deal of scientific work remains to be done, there is substantial indication that is not carefully regulated, cadmium may turn out to be a serious environmental hazard.

Staff members assigned to these hearings: Leonard Bickwit and Michael Brownlee.

The words "if you are not going to do any work," which preceded words, "you might as well get your buckets and go home," contradicted finding that a reason, other than refusal to work, was the motivating force the assumed discharge.

Finally, under the direct examination of his own counsel, Applicant Earn Scott testified as follows (Tr. pp. 247-48):

"Q *** Did there come a time that you were discharged or discharged by the Smitty Baker Company?

"A Yes, sir.

"Q When did that occur?

"A April the 15th.

"Q Of what year?

"A 1971.

"Q This year?

"A Yes, sir.

"Q And what was the reason you were discharged?

"A Well, failing to work under a bad roof."

Under cross examination, the same witness testified that he refused to work because he was afraid of the roof.¹⁴

The spontaneous answers of Earnest Scott to the foregoing questions certainly persuasive that, at least in his mind, the reporting activities did motivate the alleged discharge, but rather that such discharge was motivated by his failure to work because of fear of the roof.¹⁵

Arnold Scott's testimony under direct examination, also by his own counsel was to the same effect, that Applicants' fear of the roof motivated the termination of their employment. (Tr. p. 314).

The Board, therefore, finds and concludes that the reason for the discharge assuming a discharge and not a voluntary quit, was because Applicant refused to work in the belief that the roof was dangerous. Further, we find that subsection 110(b)(1)(A) of the Act does not prohibit coal mine operators from discharging miners by reason of the fact that they refuse to work, only protected activity under that subsection is the reporting or instigating reports of alleged violations or dangers to the Secretary.

All Findings of Fact and Conclusions of Law in the Examiner's decision inconsistent with the views expressed in this Opinion are hereby expressly rejected.

ORDER

WHEREFORE, pursuant to the authority delegated to the Board of Operations Appeals by the Secretary of the Interior (43 CFR 41(4)), I HEREBY ORDERED:

- (1) That the Examiner's Decision IS REVERSED, and
- (2) The Application IS DENIED.

BOARD OF MINE OPERATIONS APPEALS,

C. E. ROGERS, Jr., Chairman.

DAVID DOANE, Member.

JAMES M. DAY, Director.

Office of Hearings and Appeals and

Ex officio Member of the Board

¹⁴ Transcript page 272 reads in part as follows:

[By Mr. Patterson]

"Q The day that you quit working there or the day that you were discharged, whenever you want to call it, you didn't go to work any more, go back to work where asked you or told you to because you considered that place too unsafe to work in."

"A I offered to go back the next day.

"Q I say the day that you didn't offer to go back, the reason you didn't offer to go back was because you considered the place too unsafe to work?"

"A Yes, sir; I was afraid of the place.

"Q And the thing that was unsafe was the danger of the roof falling was what you were afraid of, wasn't it, am I right about that?"

"A Right.

¹⁵ "It has frequently been stated in broad general terms that a party is bound by his own testimony which is favorable to the adverse party, unless testimony is later withdrawn, explained, or modified. In particular, the view has been taken in a number of cases that if a party in his testimony, makes a material statement of fact negating his right of action or defense, and no testimony more favorable appears to contradict or modify it, he is bound by it, regardless of its credibility. His opponent is entitled to hold him to it and even to demand a verdict or finding accordingly as a matter of law ***" 30 Am. Jur. 2d Evidence § 1087 (1967).

[The following information was referred to on p. 112:]

ASBESTOS AND YOU

By Barry I. Castleman and Albert J. Fritsch, Center for Science in the Public Interest, Washington, D.C., February, 1973)

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ABSTRACT

Asbestos has become a widely used material in our industrial society over the last 100 years. Unfortunately, we have found that there are grave hazards attendant upon its use. Severe lung scarring, which can lead to death from heart failure, results from long-term, heavy exposure (asbestosis). With the implementation of basic dust controls in asbestos processing plants, it was hoped that the workers' hazard would be eliminated. However, as asbestosis became a less severe problem, a startling incidence of lung cancer and stomach cancer appeared among asbestos workers. In the late 1950's an epidemic of an extremely rare cancer was discovered and traced to environmental asbestos exposure (malignant mesothelioma). As these diseases were associated with successively lower exposures, the populations known to be at risk have increased. Even while this information was being published, new and dangerous applications of asbestos were developed, the worst of which was sprayed fireproofing insulation. This alone exposed millions of American construction workers to high concentrations of asbestos during the 1960's, as well as neighbors and passers-by to a lesser extent. It is now established that urban dwellers with no history of occupational exposure to asbestos have asbestos fibers and scarring in their lungs. Whether this significantly increases their cancer risk will not likely be known for decades, due to the long latent periods of these diseases and the inability of past studies to define the dose-response relationship.

The purpose of this report is to stimulate a greater awareness of asbestos hazards, and generate actions which will reduce and eliminate these hazards. At this time, the many government agencies which should regulate uses of asbestos—The Labor Department's Occupational Safety and Health Administration, HEW's Environmental Protection Agency and Food and Drug Administration, Interior's Bureau of Mines, and the Federal Trade Commission are all failing to take appropriately strong measures. In many cases, the hazards can be eliminated by substitution of less dangerous materials or reduced by implementing safer work practices.

ACKNOWLEDGMENT

The authors gratefully acknowledge the contributions of Dr. Henry Wehman, Dr. Jerome Gavis, and Mrs. Donna Powers in the preparation of this document.

Asbestos, Friend or Foe?

This report deals with the health and environmental effects of asbestos. We Americans have shown far more skill and ingenuity in using asbestos in our consumer products than we have in safeguarding ourselves from this toxic material. We know that asbestos is both useful and toxic, but we don't have enough response information on low levels of environmental asbestos exposure. There is evidence that asbestos exposure in combination with other hazardous substances carries severe risk of cancer. Since surveillance techniques are extremely tedious or primitive, no one has yet defined the concentrations and distribution of asbestos particles within the environment.

We show great ingenuity in using asbestos in homes, trains, airplanes, ships, farms and factories. Fortunately, a part of the asbestos used is more or less harmless due to the lower possibility of erosion of the fibers from such items as ceramic products and plastic and tile products. However, other uses are extremely dangerous due to the fact that asbestos is not held tightly in the product or on the applied surface. Examples are asbestos cloth, rope, paper and insulation materials.

and flaking. The atmosphere of the working space can easily be contaminated by asbestos. For other groups, see Table III.

One unsuspected source of asbestos is in talcs which contain varying amounts of tremolite asbestos. Talcs are soft and can be reduced to small particle size; they are cheap and are good thermal and electrical conductors and like asbestos, are resistant to attack by acids and bases. These properties allow for a multiplicity of uses (see Table IV) ranging from fillers in scouring soaps to solid lubricants.

Blejer (130) has called attention to the potential cancer hazard posed by the strong chemical similarity between talc and asbestos, and has also written, one of the authors that many mineralogists doubt if such a thing as an asbestos-free talc deposit exists. This latter complication has so far prevented the appearance of a study of cancer incidence of workers exposed to pure talc. Talc miners who work with a talc containing about 30% tremolite risk developing a talc fibrosis similar to asbestosis and incur four times as much cancer of the lung and pleura as their counterparts in the general population (131).

A few mineralogical analyses have been made on talcs used in these materials. A study by Schulz and Williams on 51 commercial talcs indicated a range of 0 to 82% tremolite with greater than trace amounts in 17, or one-third (115). This alarming report beckons a thorough analysis of all uses of talcs. Some of the areas which require immediate investigation should be talcum powders and vaginal deodorants. Here large quantities of talc which could contain different amounts of asbestos can be easily administered to prime cancer sites.

Among talc uses which should be strictly controlled include the use as lubricants in the interior walls of balloons, where children naturally inhale and exhale the air used to inflate the item. Recent analyses of a limited number of balloons by the Food and Drug Administration revealed no asbestos in the talc. However, strict regulations on talc use are still needed with an active program of surveillance.

A recently discovered serious contamination problem is in the area of coats imported from Italy which contain asbestos mixed with wool. This was detected because the coats were declared to contain asbestos in order to escape the wool duty. Before the public was alerted in 1971, there was an estimate of 100,000 coats sold to women in this country. A measurement of air concentrations near lightly brushed coats were 10,000 times more asbestos than normal background (132).

ASBESTOS IN FOOD, DRINKS, AND DRUGS

Though asbestos is not directly added to human foods, still it is able to contaminate them through careless and thoughtless practices. One such practice is the polishing of rice by the use of talcs. Talc is also used as a dusting powder for salami and a polishing medium for peanuts (128). Merliss believes that since much of the polished rice eventually is exported to Japan, this might be a reason why there is a very high incidence of stomach cancer in that country (133). While this inference was highly questioned in recent months, Merliss' report eventually led the Food and Drug Administration to propose a ban on asbestos-containing talc as a polishing agent (see Appendix 2).

A use of asbestos which causes considerable worry is the use of asbestos filters for beer, wine, and hard liquors. This allows for small fibers to be washed into the final product and find their way into the stomachs of drinkers. One of the authors spoke with the chief engineer at a Carling brewer and informed him of the hazardous potential of asbestos to workers and the public. The company immediately procured a cellulose substitute from Greco Incorporated, which had also furnished the asbestos-containing filter material. Asbestos filter media are widely used in United States breweries, and at this time a number of companies are switching to substitutes voluntarily in order to preempt government regulation and adverse publicity.

The above experience supports the claim that the resistant properties and low cost of asbestos lead to widespread, nonessential uses which can be readily substituted and eliminated.

Asbestos-containing filters are also used by some manufacturers of gin. Representatives of Seagram's, one of whose products is Calvert gin, maintain that asbestos has unique filtration properties and the company is seeking other

Calvert gin than were present as background levels in the water from which it was made (133a).

Asbestos filters are also used in processing fruit juices, sugar, lard, and vegetable oils, and the listing here is by no means all-inclusive.

Nicholson and co-workers found that asbestos filters contaminate drug solutions used to intravenous, intramuscular, and intraperitoneal injections (133b). This last form of "therapy" is particularly alarming in view of the fact that the peritoneum is a prime site for development of mesothelioma.

The Food and Drug Administration has said it is conducting analyses to determine if asbestos is entrained in certain products filtered with asbestos. However, the FDA spokesman claims they are having trouble adapting their chosen techniques, optical microscopy, and X-ray diffraction, to perform the analyses. This is because optical microscopy is incapable of detecting most of the tiny fibers, and X-ray diffraction depends upon the crystal structure remaining intact (as mentioned earlier, even water will leach magnesium from phyllosilicate). A leading New York asbestos researcher has not only told FDA officials that their methods won't work, but has also demonstrated this claim for them. This deliberate subterfuge of studying a problem to death shows the FDA's contempt for its stated mission of protecting the public health.

Asbestos cement pipe carrying potable water requires periodic drilling and tapping for maintenance purposes. In addition, asbestos may be slowly eroded by water flowing through these pipes. Analyses are being undertaken to determine the degree of contamination of water from these causes, where this pipe is used. In Baltimore, asbestos cement pipe is prohibited for metropolitan water use because cast iron and prestressed non-asbestos cement pipe have better physical properties (133c). However, word did not travel far. In neighboring Harford County, 80 percent of the water supply is carried in asbestos cement pipe.

The Environmental Protection Agency has proposed no regulations for the discharge of asbestos into waterways.

Conclusion and Recommendations

The widespread contamination of asbestos throughout the United States is known but has not been publicized. The public is simply unaware of how dangerous this toxic material is. The work of good research scientists over the past few decades which shows the cancer-causing potential of this material has not been coupled by a socially responsible education of the great mass of citizens who come in contact with asbestos. It is time that public interest scientists broadcast the simple proven truth and demand that unanswered questions as to extent of contamination and types of use be addressed.

The leading cause of death among asbestos workers today is lung cancer. Asbestosis, formerly the leading cause of death of these workers, is declining. The reason is that asbestosis is caused by relatively severe occupational exposure, characteristic of pre-1940 asbestos plant conditions. Continuous improvements made since then and implementation of recently adopted standards should virtually eliminate asbestosis as an occupational hazard. In the meantime, incidence of lung cancer in asbestos workers has increased dramatically.

The recent discovery that insulators who smoke cigarettes have 92 times as great a chance of developing lung cancer as men who neither handle asbestos nor smoke is particularly alarming. Lung cancer in urban areas is twice as high as in rural areas, and the National Academy of Sciences attributes the difference largely to air pollution (134). It is also known that urban dwellers with no history of occupational exposure to asbestos commonly have numerous asbestos fibers in their lungs. What role do low levels of asbestos exposure play in urban lung cancer, particularly among the millions of cigarette smokers?

Mesothelioma is another major cause of death among asbestos workers. Others who receive neighborhood and indirect occupational exposure are also subjected to increased mortality from mesothelioma, which occurs mostly in workers with light exposure. Because it is caused by lower level exposure, mesothelioma has become the disease of greatest concern to those who study the health hazards of asbestos exposure.

Gastrointestinal cancer is two to three times as prevalent among asbestos workers than in the general population. It might be considerably more common if not for the competing risks of other asbestos cancers and asbestosis. This finding has grave implications for the presence of asbestos fibers in foods and

that excess mortality in the above categories claims 40% of insulators and asbestos processing plant workers has led some to call asbestos work the worst occupational health problem in the U.S. Recently adopted Labor Department standards are demonstrably insufficient to protect against asbestos cancers.

Selikoff and co-workers (135) estimated that there are fewer than 100,000 workers regularly using asbestos in construction trades in the United States. Yet more than 3,000,000 other building trade employees work in the same structures. A large number of workmen have similar indirect occupational exposure in shipyards (136).

In addition to the plight of these workers, there are many Americans subject to family and neighborhood exposures to asbestos. Everything from talc powder to playing and living near construction sites and demolition projects open about half of all Americans to serious confrontation with asbestos.

The knowledge we now have about the carcinogenic effects of asbestos can be as a result of retrospective epidemiological studies. Because of the inherent incompleteness of these studies and the difficulty in compiling accurate information on causes of deaths, we have obtained an inconclusive picture about dose-response relationships for mesothelioma and lung cancer. Studies not undertaken will not yield results for many years owing to the long latent periods of these diseases.

Since the threshold concentration that humans can safely tolerate for continuous exposure has not been determined, it is impossible to evaluate the health hazards posed by present ambient concentrations. Likewise, it is not possible to determine the hazard posed by nonoccupational use of asbestos-containing items at this moment. The effect of asbestos as an environmental carcinogen will be more fully determined in future studies on mesothelioma mortality trends.

Asbestos is one of the major environmental contaminants; it was declared so by the Environmental Protection Agency in the spring of 1971. However, this declaration has not been fortified as of this moment by Standards. The original proposed regulations (*Federal Register*, Dec. 7, 1971) have not yet been implemented. In fact, an intermediate draft document was found to be weakened (see Appendix 3).

While more scientific research is necessary, the need should not retard us from demanding stricter regulations on the manufacture, advertisement, distribution and use of asbestos products. Both collective and individual action is necessary. Among collective citizen actions should be the following:

- (a) demand a zero fiber time-weighted average for all occupational exposure to asbestos by July, 1976 (see Appendix 4);
- (b) provide that all hand-operated and power-operated tools for asbestos have local exhaust ventilation systems including fabric filter dust dust collections;
- (c) require personal protective equipment for work places where asbestos concentrations exceed the level of 2 f/ml;
- (d) ban the use of friable asbestos materials in building construction, except where no substitutes can be found;
- (e) implement strict control of asbestos use in shipyards in order to eliminate indirect occupational exposure;
- (f) inform all brake servicing mechanics, people who wear asbestos protective clothing and others who are exposed to asbestos in their work of these hazards, and recommend safe practices;
- (g) affix caution labels to all raw materials, mixtures, scrap, waste, debris and other products containing asbestos fibers;
- (h) halt the use of asbestos in the making of any friable consumer product and remove these materials from the store shelves;
- (i) discontinue the use of asbestos filter materials in the preparation of foods, drugs, and alcoholic drinks;
- (j) stop the use of talc containing even trace amounts of asbestos in any product where fibers could become airborne;
- (k) forbid the use of talc in foods and some consumer products including vaginal deodorant sprays;
- (l) require public buildings, which allow return air to cross sprayed asbestos areas, to have air plenums surfaced with metal ductwork;
- (m) require all buildings with exposed asbestos ceiling surfaces to undergo renovation for removing or covering the asbestos;

(n) require adequate wetting to lay dust in demolition of buildings containing asbestos;

(o) prohibit the use of asbestos cement pipe in metropolitan water supply systems.

What can you do as an individual concerned citizen? Now that you know that asbestos is used in a multitude of products, many of which are not labeled, beware of any product which could conceivably contain friable asbestos fibers. If you suspect that a product in a hardware store contains asbestos, read the label, ask the salesman, and (if necessary) write to the manufacturer. Ask your local hardware dealer to remove asbestos dust from the shelf.

Check pipe and boiler insulation in your home and see that the surface is not broken. You can buy resin-impregnated cloth to wrap the pipe insulation. Replace torn ironingboard covers and buy them (asbestos waste can otherwise find its way into the air via a municipal incinerator). Likewise, bury any imported coats purchased in 1970-71 which contains asbestos as indicated on the label.

Make sure that your neighborhood elementary school no longer has asbestos powder for making puppets and masks. Find out whether the building you work in has uncovered asbestos fireproofing in the recirculation air plenum or on ceilings. Ask local breweries and distillers if they use asbestos filters.

If there is an asbestos mine, mill or manufacturing plant near you, find out what it discharges into the air and water. Are ore-carrying trucks covered with tarpaulins?

Before 1895, when Johnson and Johnson began talc manufacture, babies were commonly dusted with corn starch; this safe substitute is still available, and at one-fourth the cost of talc. We recommend it. Don't use feminine hygiene sprays which contain talc. Avoid talc-dusted balloons, rice, prophylactics and chewing gum. If you suspect a product, write to the manufacturer—and let us know if you discover another use of asbestos.

While many of the applications of asbestos products cannot be judged at this moment due to lack of sufficient evidence of hazardous use, still we should err on the side of prudence; we should remove a suspected product until the manufacturer proves that the item is not harmful. It is not the duty of the public interest scientist to prove whether each and every item is harmful or safe. The public has the right to demand this scientific evidence from the manufacturers of the consumer products which will otherwise simply be means to further profits at the expense of the health and safety of the American people.

Economics should not be the major determinant as to whether to remove an asbestos-containing product. Building plans may have to be modified and construction and demolition costs increased, but these are small when compared to the risk of health involved. The application of insulation in sheet or other solid form, although less convenient than spray application, still provides adequate insulation and fireproofing. Furthermore, asbestos-free sprays have been developed.

It is time for the American people to view asbestos as neither friend nor foe. The far wiser position is to treat this potentially toxic material with utmost respect, and only use it where absolutely necessary. If we did so, the volume of asbestos mined and processed would undoubtedly decrease, but the life and health of many people would be prolonged and improved. It is time the citizen makes his views known on this environmental pollutant.

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