

UNITED STATES GOVERNMENT

U.S. CONSUMER PRODUCT
SAFETY COMMISSION
WASHINGTON, D.C. 20207

Memorandum

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TO : Commission
 Through: Office of the Secretary
 Through: Office of the Executive Director
 Through: Bert Simson, Director, Office of Program Management
 FROM : Francine Shacter, Program Manager, Chronic Hazards Program and
 John Liskey, Project Manager
 Office of Program Management
 SUBJECT: Final Ban: Patching Compounds and Emberizing Materials Containing
 Respirable Free-Form Asbestos

DATE:

The attached package contains material relevant to the final ban on patching compounds and emberizing materials containing respirable free-form asbestos. Contained in the package are the following:

Tab A: Draft Final Federal Register Notice

Tab B: Staff response to comments received regarding the proposed asbestos ban

Tab C: Memoranda from E. June Thompson and Steve Bayard, ESHS, Re: Contamination

Tab D: Memorandum from Charles M. Jacobson, CERM, Re: Proposed Compliance Strategy and Problems with implementation of the Ban on Asbestos Containing Products

It should be stressed that the federal register notice represents the combined efforts of staff and Office of General Counsel and conveys the best possible notice obtainable at this time. Additional changes may be necessary prior to the Commission decision on the notice; however, in the interest of giving you the most time available to review the notice, it is being transmitted now.

The problems raised by the comments which caused the delay in completing the notice relate to the presence of asbestos as a contaminant in patching compounds; information on substitutes; and questions about effective date. A brief discussion of these matters follows.

Memoranda from E. June Thompson, and Steve Bayard, ESHS, in Tab C, discuss the issue of asbestos as a contaminant in asbestos-free patching compounds. Presently, the draft final federal register

notice bans knowingly and intentionally adding asbestos to patching compounds; however, for enforcement purposes, a method for establishing permissible contamination has been included. As pointed out in the memoranda, current limits of sensitivity appear to be about 1 fiber/1000 particles. Thus in the Federal Register notice, the limit of 1 fiber/1000 particles has been incorporated. The staff believes that this limit will detect, by commonly available procedures, minor background contamination.

Several of the comments received expressed concern that substitute materials for patching compounds might present a risk. While there are no data to indicate that any of these substitutes present a hazard to consumers, neither are there any data on their safety. Additional study would be needed to evaluate the risk of inhalation exposure to them.

The Commission, in proposing the ban on patching compounds containing respirable free-form asbestos, set an effective date of 30 days after publication of the final ban. While the draft final federal register notice is written to reflect 30 days, it should be noted that several commenters suggested dates other than 30 days. Additionally, the commenters believe that a 30-day effective date will prove burdensome to smaller manufacturers.

In Tab D, the Directorate for Compliance and Enforcement discusses the proposed compliance strategy. This strategy was developed subsequent to the briefing given to the Commission on October 13, 1977.

Finally, the Economic Impact Statement is not a part of the attached package; however, it will be forwarded to you within a couple of days.

Attachment

A

BON - 01847

TITLE 16 - COMMERCIAL PRACTICES

CHAPTER II - CONSUMER PRODUCT SAFETY COMMISSION

SUBCHAPTER B - CONSUMER PRODUCT SAFETY ACT REGULATIONS

PARTS 1304 AND 1305 - CONSUMER PATCHING COMPOUNDS AND
ARTIFICIAL EMBERIZING MATERIALS (EMBERS AND ASH)
CONTAINING RESPIRABLE FREE-FORM ASBESTOS

ESTABLISHMENT AS BANNED HAZARDOUS PRODUCTS

AGENCY: Consumer Product Safety Commission

ACTION: Final rules

SUMMARY: In this document the Commission declares that the following products containing respirable free-form asbestos are banned hazardous products under the Consumer Product Safety Act:

(1) consumer patching compounds used to join or repair interior walls and ceilings (mixing of the product before it is applied, sanding of the product after it is dried, and cleanup after completion of the process, release asbestos fibers that can be inhaled); and (2) artificial emberizing materials (embers and ash) used in fireplaces to simulate live embers and ash (ordinary air currents in the household move asbestos fibers that can be inhaled). The Commission issues this ban in order to reduce or eliminate the unreasonable risk of injury from certain types of cancer that may result from inhaling asbestos fibers released during the use of these products.

EFFECTIVE DATES: (1) For consumer patching compounds containing respirable free-form asbestos, the regulation issued below at section 1304, applies to products in commerce on _____ (insert date that is 30 days after publication of this notice) or after that date. (2) For artificial emberizing materials containing respirable free-form asbestos, the regulation issued below at section 1305 applies to products in commerce on _____ (insert date that is date of publication of this notice) or after that date.

FOR FURTHER INFORMATION CONTACT: John Liskey, CPSC, Office of Program Management, Washington, D.C. 20207; (301) 492-6557.

SUPPLEMENTARY INFORMATION:

BACKGROUND

On July 29, 1977, by publication of a notice in the FEDERAL REGISTER (42 FR 38783), the Commission proposed rules to declare that consumer patching compounds and artificial emberizing materials (embers and ash) containing respirable free-form asbestos, are banned hazardous products under the Consumer Product Safety Act (CPSA). These rules were proposed because the Commission preliminarily determined that an unreasonable risk of injury of certain types of cancer, such as mesothelioma and lung cancer, is associated with inhalable asbestos found in these products. The information on which the Commission's preliminary determination was based is set forth in the proposal. The data in the proposal are incorporated herein by reference. The bibliography of 50 references cited in the proposal are repeated in this preamble for convenience. Numbers 51 and over refer to additional information considered in issuing this rule.

On July 29, 1977, by publication of a notice in the FEDERAL REGISTER (42 FR 38782), the Commission also proposed a rule finding that it is in the public interest to regulate consumer patching compounds and artificial emberizing materials containing respirable free-form asbestos under the Consumer Product Safety Act (CPSA) rather than under the Federal Hazardous Substances Act (FHSA). Section 30(d) of the CPSA (15 U.S.C. 2079(d)) requires the Commission to make such a finding by rule, before regulating under the CPSA, a risk of injury which could be reduced or eliminated to a sufficient extent under the FHSA. The Commission issues this rule elsewhere in the FEDERAL REGISTER. The data in these proposals are incorporated herein, by reference.

Section 9(a)(2) of the CPSA requires that, in addition to providing an opportunity for making written submissions, the Commission shall provide interested persons with an opportunity to make oral presentations of data, views or arguments relating to proposals to ban. Oral presentations on the bans were heard by the Commission on August 15, 1977. Views on the bans are discussed below under COMMENTS ON PROPOSAL.

In order to have sufficient time to review all the responses to the banning proposal, including late responses, on October 4, 1977 (42 FR 53970), the Commission extended until November 28, 1977, the time in which it must either publish a consumer product safety rule or withdraw the proposals to ban.

COMMENTS ON PROPOSAL

Oral views on the proposal were presented by 7 persons on August 15, 1977 with 3 representing consumer groups and 4 representing manufacturers. In addition, the Commission received 30 written comments which represented 17 manufacturers and 2 distributors; 4 federal agencies; 3 public interest groups; 2 concerned citizens; a supplier of raw materials; and a chemical research and development firm. Among the 10 commenters who expressed support for the ban were 5 manufacturers of patching compounds, 3 federal agencies and 2 public interest groups.

The significant issues raised by the oral and written comments are set forth below.

A. SCOPE AND DEFINITION - The proposal states that consumer patching compounds are those that are customarily produced or distributed for sale to or for the personal use, consumption or enjoyment of consumers in or around a household or residence, a school, in recreation or otherwise. The Commission considered in the proposal that patching compounds for application in these consumer environments are either distributed for sale to consumers or are for the personal use or enjoyment of consumers. Moreover, information available to the Commission indicated that most patching compounds for commercial/industrial use are distributed in such ways that consumers have access to these products (51) either by purchase or for their use and enjoyment. Therefore, the Commission concluded that these are consumer products subject to the Commission's jurisdiction.

1. Patching compounds as consumer products

(a) Several commenters requested a clearer definition of consumer patching compound and a supplier of asbestos questioned the boundaries of the term "consumer product." A manufacturer states that the definition of consumer patching compounds in the ban has been improperly broadened to include jurisdiction over building materials. He believes that the CPSA permits regulation only of articles used within the home, not the structure of the home itself or the integral parts of the structure. He states that since consumers have access to patching compounds containing respirable free-form asbestos through most marketing channels, these products can be considered consumer products under the CPSA. Thus, he believes that it was inappropriate to cite a recent case, (U.S.A. v. Anaconda Co., et al., Misc. No. 77-0024, (D.D.C.) June 15, 1977) which indicates that the presence of a product in a consumer environment can help decide whether that product is a consumer product under the CPSA. Therefore, the commenter urges "the Commission in its final regulation to delete" the paragraph on the Anaconda case in order to "avoid the creation of an unnecessary conflict ... within the regulation itself."

In response to this comment, the Commission notes that the paragraph which cites the case in question is not in the proposed regulation but in that part of the preamble which explains the regulation. In the preamble, the Commission cited Anaconda not in reliance on the case as a basis for regulation but to show how the case interprets the definition of consumer product at section 3(a)(1) of the CPSA which reads,

The term "consumer product" means any article, or component part thereof, produced or distributed (i) for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or (ii) for the personal use, consumption or enjoyment of a consumer in or around a permanent, or temporary household or residence, a school, in recreation, or otherwise;

Although courts have not yet reached a definitive decision on the coverage of the term "consumer product," the Commission believes that the statute and legislative history, by themselves, afford sufficient authority for Commission jurisdiction over the defined product and its use in consumer environments. It appears to the Commission that the definition of consumer patching compound in the proposal falls within section 3(a)(1) of the CPSA and that the Anaconda case underscores the definition.

In order to minimize any confusion, the following is added to 81304.1(c) Scope and Application, to show the coverage permitted by the CPSA,

Only consumer products are subject to this regulation. Patching compounds which are consumer products are those which a consumer can purchase. Merely labeling a patching compound for industrial use would not exclude such articles from the ban. If the sale or use of the product to consumers is facilitated, it is subject to the ban. Patching compounds which are labeled as, marketed, and sold solely for industrial use in non-consumer environments are not subject to the ban. In addition to those products which are sold directly to consumers, the ban applies to patching compounds containing respirable free-form asbestos which are used in residences, schools, hospitals, public buildings or other areas where consumers have customary access.

It is clear from this language, that use of patching compounds in consumer environments determines their status as consumer products

whether the patching compounds are applied professionally or by consumers. And, although the hazard may be greater for professional users of patching compound because of their repeated exposure, residual dust from sanding during construction or renovation is also a hazard to consumers who may not apply the patching compounds themselves (36).

(b) A manufacturer who supports the ban states that he would have no way of policing the sale of different size containers. Therefore, although he packages a 1-gallon size of patching compound for sale to consumers and a 5-gallon size for commercial-industrial use, he believes the ban should apply to all sizes.

Given the availability of patching compounds to consumers through most marketing channels, the Commission agrees that it would be burdensome for manufacturers and distributors to assure that large sizes of patching compounds which they claim to be industrial products, are not sold to consumers. Moreover, as noted in the preceding response, merely labeling a patching compound for non-consumer use, would not exclude such articles from the ban. Where a manufacturer, distributor or retailer fosters or facilitates the product's sale to or use by consumers, the product is considered a consumer product and is within the scope of this ban. This comment indicates that it may be exceedingly difficult to differentiate a patching compound that is a consumer product from one that might be termed a product for industrial use only.

2. Regulation of patching compounds by OSHA

A manufacturer of dry-wall joint compounds states that the commercial and professional market for such compounds is already regulated by the Occupational Safety and Health Administration of the Department of Labor (OSHA) and, since the consumer part of his business is small, the ban should not apply to compounds for commercial and industrial use.

As is indicated herein, any patching compound containing respirable free-form asbestos that consumers have access to in consumer environments or may purchase would be subject to the ban. Therefore, such products, although they may be for industrial/commercial use, are also considered to be consumer products.

On the subject of regulation of these products by OSHA, the Commission notes that section 31 of the CPSA provides that the Commission shall have no authority to regulate any risk of injury associated with a consumer product if such risk could be eliminated or reduced to a sufficient extent by actions taken under the Occupational Health and Safety Act of 1970. Under that Act, OSHA has issued regulations which specify the airborne concentrations of asbestos fibers to which any employee may be exposed, (29 CFR 1910.93a). However, OSHA regulations apply only to workplaces and not to places where consumers would use the products themselves. Therefore, the Commission considers that actions to regulate this product which can be taken under the Occupational Health and Safety Act of 1970, cannot reduce or eliminate to a sufficient extent the

unreasonable risk of injury to consumers that is associated with the product. Accordingly, the Commission regulates this product under the CPSA.

3. Type of patching compound covered by the ban

A manufacturer of caulking, sealing, glazing, adhesive and coating products believes the reputation of his product could be adversely affected by the ban. Although the Commission has stated that the banned product presents a hazard because it is mixed, sanded and moved about during cleanup operations, the commenter believes that the definition of the banned product should specifically exclude the above-listed products because they are designed to remain flexible and are, therefore, not generally sanded. Therefore, the commenter requests that the definition be amended to cover only those compounds, "which after drying are required to be or are normally sanded to a smooth finish."

In response to this comment, the Commission notes that the patching compounds subject to the ban are those that contain asbestos which can be inhaled as a result of mixing, sanding and cleanup operations. Therefore, patching materials such as those listed by the commenter which are intended to remain flexible and are therefore, not sanded, would be exempt if they are not available in dry, ready-to-mix form. The Commission believes it is clear that only consumer patching compounds containing asbestos which can be inhaled when the product is in dry form or being sanded are subject to the ban, and therefore declines in this case to amend the definition of patching compound at section 1304.3(d).

4. Asbestos terminology

(a) In discussing the proposed definition of "asbestos," a writer from a chemical research and development center states that "silica" is a chemical compound and as a compound is not a component of asbestos. He suggests that the word "silicon" be used to denote that it is a single element which is present in asbestos.

The Commission concurs that the term "silica" should not be used, but rather it should be "silicates," since asbestos is a generic term used to describe a number of naturally-occurring hydrated mineral silicates. Therefore, the word "silica" is deleted from the definition of asbestos in section 1304.3(b) below and the term "hydrated silicates" is substituted therefor.

(b) A public interest group takes issue with the definition of asbestos used in the proposal and urges the Commission to adopt a definition of asbestos proposed by OSHA in 1975. The definition of asbestos used in the Commission proposal is based on the definition used by the Bureau of Mines (56). The commenter believes that the OSHA proposed definition could help resolve disputes over the presence or absence of asbestos in consumer products.

As the commenter pointed out, several federal agencies with responsibilities for regulating asbestos, (EPA, FDA, OSHA, CPSC) are working toward a uniform definition of asbestos. At a recent workshop, July 18-20, 1977, at the National Bureau of Standards on asbestos definition and identification problems, it was agreed that there should be a uniform definition of asbestos which would

be mineralogically correct as well as reflect health concerns. However, there was clearly a lack of agreement on a definition and an interagency agreement on a definition has not yet been reached.

The definition which the commenter urges the Commission to adopt was proposed by OSHA on October 19, 1975; it has not yet been finalized and is subject to change. The OSHA proposed definition reflects OSHA's concern for the health aspects of asbestos and is based on experimental findings associated with fiber morphology (size and shape). The Bureau of Mines also seeks to encourage uniform definition. Their definition which was used by the Commission is based on mineralogical composition. This has been adopted in final form by that agency.

The Commission has reviewed much of the available data on the characteristics of asbestiform mineral fibers and their non-asbestos counterparts. From these data, it would appear that use of the proposed OSHA definition could also include nonfibrous cleavage fragments and other particulate substances, as well as other mineral fibers within the proposed dimension range that are not asbestos fibers. While the Commission is interested in arriving at an unambiguous uniform definition of asbestos, there is not yet enough evidence to base a definition of "asbestos" on fiber morphology. Therefore, the Commission believes the proposed definition should remain as it is in the proposal for the present. As circumstances warrant, the definition could be amended at a later date.

5. Asbestos contamination

Several manufacturers expressed concern that all patching compounds would be subject to the ban rather than only those compounds to which asbestos has been intentionally added. They point out that asbestos is ubiquitous in the environment and that traces of asbestos may be present as a contaminant in other minerals that are mined in areas of serpentine rock. One commenter suggests that the Commission consider permitting patching compounds which contain such naturally occurring contaminants. Other commenters suggest that a percentage of asbestos contamination by weight be permitted. The lowest percentage suggested by one commenter is 1 percent because the Environmental Protection Agency (EPA) permits the presence of 1 percent asbestos by weight in spray-on asbestos insulation and fire proofing.

As noted in the proposal, the Commission is aware that asbestos is present in the environment. Further, the Commission does not wish to ban all consumer patching compounds in which traces of asbestos are present as a contaminant rather than an intentionally added substance; the ban applies to products containing intentionally added inhalable asbestos. However, to permit consumer patching compounds to contain unintentionally added asbestos contaminants in any amount could discourage appropriate quality control measurements designed to reduce levels of unintentional contamination. Nevertheless, the Commission agrees that a level of permissible contamination should be stated.

The suggestion that the Commission permit contamination of 1 percent by weight, however, appears to be inappropriate for consumer patching compounds because consumers would not be sufficiently protected. One percent by weight could mean a substantial number of small lightweight asbestos fibers thus presenting a significant exposure to consumers of respirable free-form asbestos. Therefore, the Commission declines to adopt a percentage by weight to define permissible contamination.

Industry experts do not agree as to the amount of asbestos that might be present in products without deliberately added asbestos. Nor is there agreement on the reliability of the techniques used to measure low levels (below 1 percent) of asbestos by weight. The Commission believes, however, that the use of appropriate quality control measures and careful selection of raw materials can serve to minimize contamination from unintentionally added asbestos (see the Commission's economic impact statement on file at the Office of the Secretary). Notwithstanding such measures, the Commission recognizes that contamination may exist. Therefore, for enforcement purposes, the Commission will use routine screening by conventional optical methods, selecting samples that have fiber counts higher than one fiber per 1000 particles (greater than 5 microns in length). These selected samples will be submitted for more quantitative procedures such as electron microscopy and x-ray diffraction. Commission action will be based upon qualitative and quantitative estimates of asbestos in the product.

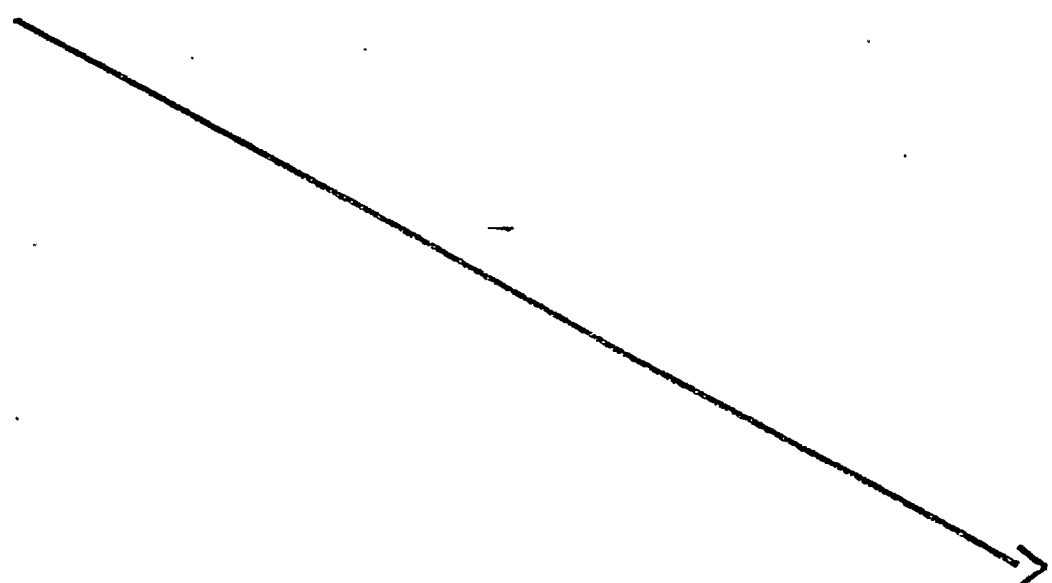
The level of one fiber per 1000 particles in a sample is chosen as one which the Commission believes will allow for minor background

contamination which can be detected by commonly available procedures. (As is pointed out by P.E. Champness, "Where the aim of the investigation is identification of the type of asbestos, the fibers are usually sufficiently large and numerous that simple, rapid techniques such as optical microscopy..., including dispersion staining..., or x-ray diffraction..., can be used." (Champness, P.E., et al: "The Identification of Asbestos." J. of Microscopy, Vol. 108, pt. 3, pp. 231-249, Dec. 1976)).

When asbestos identification procedures permit other ways of determining low asbestos levels (below 1 percent) such as the correlation of gravimetical (weight) procedures with optical procedures, the Commission would consider amending the rule to reflect such improvements in measurement.

6. Artificial emberizing materials - exemption from ban

A manufacturer of electric artificial logs and electric fireplaces states that although the Commission proposed to ban only



artificial emberizing materials containing respirable, free-form asbestos, references in the media to artificial logs and artificial fireplaces, reflects adversely on his business. He asks, therefore, that his products, which use an artificial ash bed of vermiculite, be exempted from the ban.

As the commenter noted, the Commission ban applies only to emberizing materials containing respirable free-form asbestos and not to any artificial logs or artificial fireplaces with which they may be used. Since the banned product is used with artificial logs, it is understandable that questions are raised as to different kinds of artificial logs. The Commission does not believe it would be appropriate to exempt from the ban all electric logs coated with unidentified substances, or all artificial ash used in electric fireplaces, since some of these articles could include the banned product. However, in order to clarify the matter for consumers as well as producers, the Commission adds a statement to section 1305.3(d), the definition of emberizing materials, below which reads, "electric artificial logs and artificial ash beds used in electric fireplaces which do not contain respirable free-form asbestos are not included in this definition."

B. EFFECTIVE DATE - Six commenters discussed the proposed effective date of the ban of consumer patching compounds which is 30 days after publication of the final rule. Five manufacturers suggested a date later than 30 days after publication. A public interest group suggested that the effective date be the date of publication of the final rule.

(1) One commenter suggested that a series of effective dates be considered: 30 days for manufacturers, 90 for distributors and 180 days for retailers in order to clear inventories. Several commenters believe that a 30-day effective date might prove burdensome to small manufacturers because of the inventory problem.

The matter of inventories was considered in the proposal to ban of July 29, 1977 and further discussed at the public meeting of August 15, 1977. The concern of those involved to clear their existing inventories of consumer patching compounds containing respirable free-form asbestos was considered. Information available to the Commission indicates that manufacturers are now maintaining a relatively small inventory (about \$10,000,000). Distributors report that they maintain a small inventory compared to their sales (about \$5,000,000). Retailers have a much slower-moving inventory (51). It appears to the Commission that if the products in inventories are sold to or used for consumers, these consumers would be exposed to the unreasonable risk of cancer which the Commission seeks to reduce or eliminate. Therefore, in addition to considering the economic impact of backed-up inventories, the Commission also considered the hazards that consumers could be exposed to by permitting these products to find their way to consumer environments. Therefore, the Commission determined that the continued marketing of this merchandise from inventory should not be permitted. The Commission declines to change the effective date of 30 days after publication of the final rule.

(2) The public interest group recommends that the effective date of the ban on consumer patching compounds containing respirable free-form asbestos be the date of publication of the final rule, as it is for artificial emberizing materials.

The Commission proposed that the effective date of the ban on artificial emberizing materials be the date of publication. Unlike patching compounds, where exposure to asbestos fibers is most prevalent during mixing, sanding and cleanup operations, asbestos fibers in emberizing materials can be respired as long as such materials are in the home. It appeared to the Commission, therefore, that these emberizing materials should be removed from commerce as quickly as possible. To assist persons who already had such materials in their homes, the Commission, on July 21, 1977, issued a press release on the impending ban which included a Consumer Alert to advise consumers of the dangers associated with these emberizing materials and issuing instructions for their safe removal.

Economic advice to the Commission indicates, in addition, that no significant adverse economic impacts are anticipated as a result of the immediate effective date for emberizing materials (51). As is indicated in the foregoing discussion, the economic impact of a 30-day effective date for patching compounds may be significant. Accordingly, since those affected have been considering the 30-day effective date for patching compounds that was in the proposal, and since no new information has been presented to show that an earlier effective date should be promulgated, the

Commission declines the suggestion of the public interest group. Therefore, the effective date of the regulation on consumer patching compounds containing respirable free-form asbestos is 30 days after publication of this rule.

C. PRODUCT RISKS AND RISK ASSESSMENT - Several commenters discussed the Commission's risk assessment for patching compounds and questioned other aspects of the hazard.

(1) A manufacturer suggests that the main problem for asbestos workers is for a sander who also smokes.

The Commission notes that while data from an epidemiological study of asbestos insulation workers indicated there was an increased risk of death from lung cancer among smokers, it also indicated there was also an increased risk of death from other asbestos-related diseases, including asbestosis, among non-smokers (17). Data also suggest that the high risk of mesotheliomas (cancers of the pleura and peritoneum) from asbestos exposure appears to be unrelated to smoking (18,6).

(2) A distributor of fireplaces and fireplace equipment doubts there is a hazard associated with emberizing materials because the fibers used in emberizing materials are relatively large and fibers which would become airborne would be pulled up the fireplace flue.

While it is true that the large asbestos fiber bundles pose little risk of inhalation, the fiber bundles release individual fibers which in turn, can break longitudinally into microscopic fibrils (57). Fibers could become airborne under normal use, installation, and handling conditions, as well as from room drafts. Once the fibers become airborne, they can remain suspended over long periods of time, eventually settling out on items of furniture, draperies, etc., only to become airborne and available for respiration with use of these items. As long as the free-form asbestos emberizing material remains loose on the fireplace floor, there is a possibility that it could become airborne and thus respired.

(3) A manufacturer states that since Commission data are based on occupational statistics, it is difficult to document the Commission's view, in the proposal that, "for many people the major exposure to inhalable asbestos is in the home."

While it is true that much of the Commission data on asbestos-related disease are based on occupational statistics, a risk assessment was made of consumer exposure to respirable asbestos in patching compounds during mixing, sanding and cleanup operations which estimated the increased risk of lung cancer from such exposure in the home. A report of asbestos in consumer patching compounds indicated that significant levels of respirable free-form asbestos fibers were detected in rooms adjacent to that where the actual patching and sanding operations had occurred so that other household members could be exposed as well as the individual performing the

patching job. In many areas of the country (nonurban), there appears to be a relatively low background level of asbestos (52). Therefore, exposure in the home to asbestos fibers released from consumer products could represent the major exposure. As noted in the proposal, Dr. Paul Kotin, Johns-Manville, stated in a presentation before the Commission, June 9, 1977, that young children are particularly vulnerable to exposure to carcinogens and clearly their major exposure to inhalable asbestos would be in the home. The Commission therefore feels it is essential to minimize, to the extent possible, exposure to respirable asbestos.

(4) A commenter questions Commission reliance on OSHA's proposed amendment of October 9, 1975 to occupational exposure to asbestos as the basis for the Commission proposal. The commenter believes that portions of the OSHA review of October 1975 are scientifically inaccurate.

The Commission notes that most of the information on hazards associated with inhalation of asbestos is based on occupational exposure. It can be said that the body of scientific literature in the OSHA proposal has already been subjected to public scrutiny. During preparation of the Commission proposal, Commission staff conferred with OSHA. As a result, the Commission proposal deleted references to studies which OSHA termed to be of questionable validity.

The Commission also based its proposal on direct and indirect evidence of asbestos inhalation in non-occupationally exposed individuals, including reports from autopsy findings of asbestos fibers

in lung tissue and from epidemiological studies.

As pointed out in the Commission proposal, there had been only one report of consumer exposure to asbestos in the scientific literature prior to the proposal. Based on the data from that study, a Commission assessment was made of the potential increased risk of respiratory cancer associated with use of consumer patching compounds containing asbestos fibers.

(5) The Commission has issued a risk assessment on consumer patching compounds (53). Some commenters had highly technical comments on this assessment. Both the comments and the staff analysis and response to these comments are on file in the Office of the Secretary. For the purposes of this preamble, the Commission reviews the highlights.

(a) Two of the commenters questioned whether exposure to asbestos is cumulative over the lifetime of a person and whether intermittent exposure over several years has the same effect as if the same exposure had taken place in a single year. In reviewing the literature on asbestos exposure, the Commission finds that asbestos fibers are unlike many chemicals and other materials which the body may metabolize and excrete. Body clearance of asbestos fibers is much less effective. They have been found not only to remain in the body but to accumulate (55).

(b) Two commenters said that different ways of using consumer patching compounds resulted in the release of different levels of free-form respirable asbestos in the air. Both of these commenters

also said that different patching compounds have different amounts of asbestos. The Commission finds that although these differences occur, the average consumer will likely release more asbestos into the air because he is less skilled in application than a professional applicator. Also, the Commission recognizes that some products have a smaller percentage of asbestos than those which were used for exposure data in the Commission risk assessment. One commenter submitted asbestos exposure data from a study he conducted using a compound that contained a smaller amount of asbestos. Based on this commenter's exposure data, another risk assessment was conducted. The results suggest that exposure to this lower asbestos containing compound reduces but does not eliminate an excess of deaths due to exposure to asbestos in patching compounds. The range is from 1 death per million persons exposed for the projected five years exposure using one model and up to 226 lifetime excess cancer respiratory deaths per million persons exposed using another model (53).

(c) Another commenter says that using a pre-mixed compound reduces the consumer's exposure to asbestos. The commenter also thought that the Commission's estimate of consumer exposure was too high. The Commission's risk-assessment analysis did take into consideration the exposure during the mixing of a patching compound. While exposure to asbestos fibers would be negligible during slight stirring of a premixed compound, the exposure during the sanding and cleaning operations involved would be the same as for the compound. Consequently, the risk assessment values

would not be significantly reduced. As for the four-day, eight-hour exposure being too high an estimate, the Commission believes that while this may be high, it is a reasonably foreseeable exposure.

D. SUBSTITUTES FOR ASBESTOS - Several comments express concern that the materials used as substitutes for asbestos may also pose hazards.

The Commission shares this concern. Substitutes for asbestos have been under consideration for only a short time. Little data are available on which to evaluate the safety of substitute materials. Experimental findings of Stanton (58) indicate that many mineral fibers (in addition to asbestos) of small respirable dimensions are biologically active under experimental conditions.

According to correspondence dated July 26, 1977 from Dr. Paul Kotin of the Johns Manville Company with environmental consultant Barry Castleman, a Johns-Manville study is under way to assess the potential inhalation hazard of certain naturally-occurring or man-made mineral fibers such as ceramic fibers. Ceramic fibers are a potential substitute for artificial emberizing materials.

Human exposure data to substitutes are extremely limited. Occupational exposure data to certain clay mineral fibers which are proposed asbestos substitutes are scheduled to be presented at a Symposium on Occupational Exposures to Fibrous and Particulate Dust and their Extension into the Environment, in December 1977, these data are expected to indicate the extent of exposure, rather

than human experience findings on results of such exposure. Data on the results of human exposure to asbestos substitutes will not, in all likelihood, be available in the near future.

(1) A commenter suggests that substitutes, since they would be fibrous, would present a risk.

In assessing asbestos substitutes, data available to the Commission indicates that a number of substances may be used, many of which are not fibrous. For the fibrous clay minerals which may be used as asbestos substitutes, the Commission is aware that there is a lack of conclusive data on the hazard potential associated with these minerals. Additional study is needed to evaluate the risk of inhalation exposure to such small mineral fibers.

(2) A comment questions a statement in the proposal that fibrous glass could be considered a substitute for chrysotile in emberizing materials.

The Commission concurs with this comment; it is currently unaware of any manufacturers or distributors who use or know of the use of fibrous glass for this purpose. In addition, from a technical viewpoint, glass fibers are not similar in size and shape to chrysotile. Unlike the rod-like glass fibers, chrysotile tends to be curved, or be of curly fibers or fiber bundles, comprised of extremely small-diametered fibrils. However, glass fibers are similar - at least in shape - to some of the amphibole asbestos minerals. The diameter of most fibrous glass is reportedly greater than 3-5 microns and considered too large to be respirable. However, glass fibers are

not of uniform dimensions and a small percentage may be of respirable size. Additional study is needed to assess the pathologic effects of inhaled fibers, including fibrous glass.

E. ECONOMIC CONSIDERATIONS - Six commenters expressed concern that the ban would have an adverse economic impact on the industry. Five of the six are manufacturers who commented on patching compounds. The sixth is a distributor of gas fireplace logs.

One patching compound manufacturer claimed that some firms in that industry will go out of business should the ban be promulgated. As noted below, our studies indicate that some small producers may not have the technical capability to reformulate their products satisfactorily or may be unable to obtain necessary raw materials by the effective date of the ban. Thus, some may cease production temporarily, until such reformulation is achieved.

Two commenters discussed potential cost effects of the ban on patching compounds other than those relating to the product itself. One patching compound producer estimated the increased "workload" associated with the professional application of non-asbestos formulations at 60 percent. The Commission has investigated the potential increase in direct labor costs associated with existing asbestos and non-asbestos formulations; it estimates a 10 to 25 percent average increase as a result of switching from the former to the latter. Other costs may accrue to professional users of the product should different application tools be needed or should some jobs have to be redone due to the relatively poor

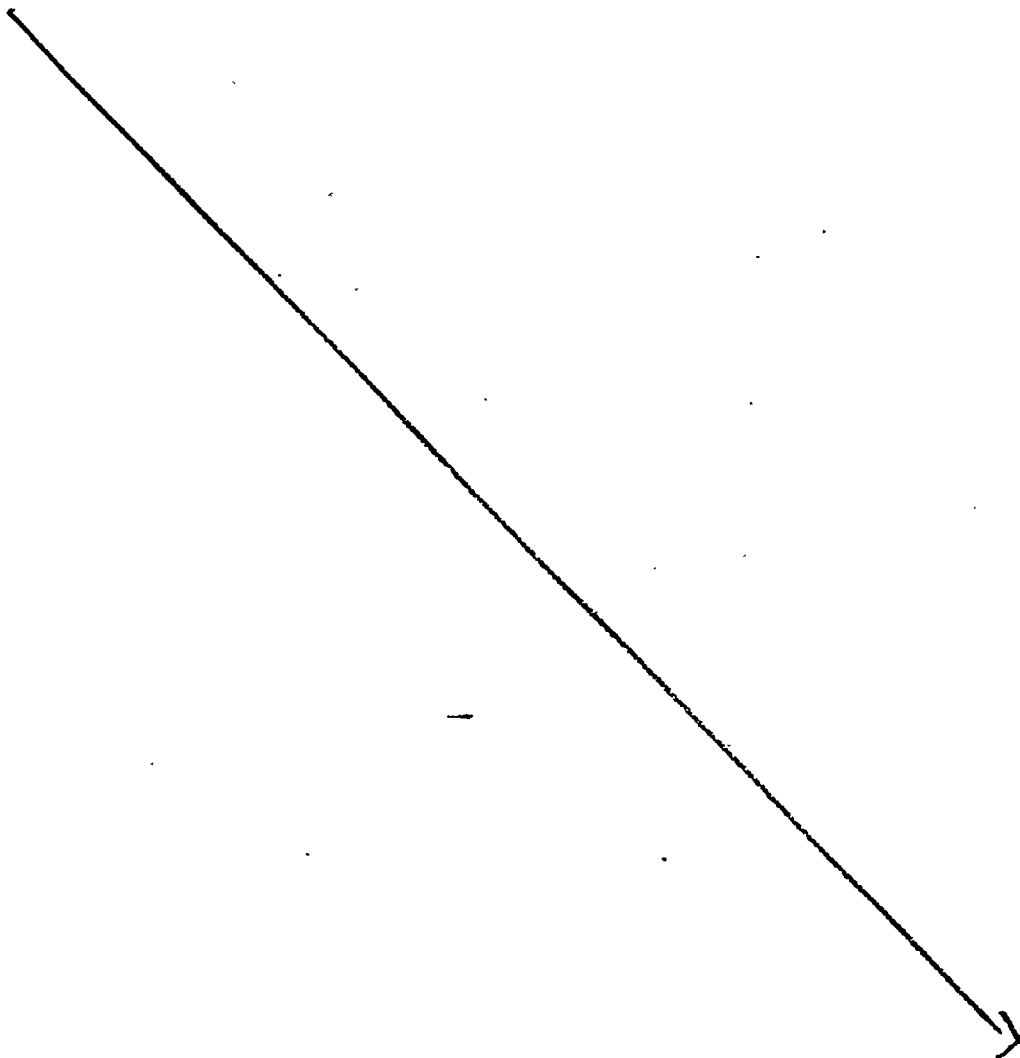
shrink- and crack-resistance of some non-asbestos formulations.

One company which may be adversely affected by the proposed ban reports that attapulgate, one of the prime substitutes for asbestos in patching compounds, is in "limited supply" and that some small manufacturers may have difficulty in obtaining that material. Other industry sources have reported this same problem. The larger patching compound producers, who already have asbestos-free formulations on the market, are not expected to have as much difficulty in obtaining substitute materials.

Two manufacturers discussed the ban's potential adverse effect on the utility of the product. One expressed a belief that non-asbestos formulations are inferior in performance to asbestos formulations. Another reinforced that belief, reporting that the absence of asbestos formulations may prompt workmen to add their own asbestos to the product to help prevent cracking when wall joints are covered. It appears that at least some existing non-asbestos formulations may be less desirable, from a performance standpoint, to professional contractors; most consumer applicators are not expected to perceive a significant difference in the product's performance.

As is indicated in the proposal, the Commission is aware that economic impacts of varying degrees will occur as a result of the ban on inhalable asbestos containing patching compounds and emberizing materials containing respirable free-form asbestos. Also, the Commission is aware too that technology for producing asbestos-free patching-compound formulations is becoming more generally available. The

economic impact will tend to be reduced over time as non-asbestos formulation technology becomes more widespread and as existing recent reformulations are improved by manufacturers. The nature and extent of the effects on the industries are discussed in the Environmental and Economic Assessments now on file in the Office of the Secretary and were considered by the Commission during this rulemaking process.



F. OTHER COMMENTS

(1) Several commenters suggested that the Commission should investigate other products containing asbestos in order to determine the existence of possible hazards.

In the proposal, the Commission noted that information on other products containing inhalable asbestos would continue to be developed in order to determine whether further regulation is necessary. Accordingly, the staff has begun to develop plans for collecting such information.

(2) One commenter suggested that the Commission issue a rule that would prohibit stockpiling of the banned products.

The Commission notes that such a rule can be issued to assist in enforcement. The Commission would consider such a rule depending upon whether enforcement experience indicates that such a rule is necessary.

(3) A commenter expressed concern that the banned products be kept out of international commerce.

The Commission notes that this comment is directed not to the proposed rule but to its enforcement. This matter will be considered in context with the Commission's enforcement policy.

(4) Several comments suggested editorial changes in the proposal. These suggestions were considered and, where appropriate, have been included herein.

DESCRIPTION OF THE BAN

The banned products. Parts 1304 and 1305 declare, respectively, that consumer patching compounds and artificial emberizing materials (embers and ash) are banned hazardous products under section 8 of the Consumer Product Safety Act.

Scope and application. The rules apply to the named consumer products that are customarily produced or distributed for sale to or for the personal use, consumption or enjoyment of consumers in or around a household or residence, a school, in recreation or otherwise. In addition to those products which are sold directly to consumers, the ban applies to the named consumer products which are used and enjoyed by consumers, such as those used in residences, schools, hospitals, public buildings or other areas where consumers have customary access, whether the patching compounds are applied professionally or by consumers. Only consumer products are subject to this regulation. Patching compounds which are consumer products are those which a consumer can purchase. Merely labeling a patching compound for industrial use would not exclude such articles from the ban. If the sale or use of the product to consumers is facilitated, it is subject to the ban. Patching compounds which are labeled as, marketed, and sold solely for industrial use in non-consumer environments are not subject to the ban. In addition to those products which are sold directly to consumers, the ban applies to patching compounds containing respirable freeform asbestos which are used in residences, schools, hospitals, public buildings or other areas where consumers have customary access.

Effective dates.

(1) The rule at Part 1304 below applies to consumer patching compounds containing respirable free-form asbestos that are in commerce on _____ (insert date that is 30 days after publication), or after that date. This prohibition applies to products in inventory as well as those manufactured on or after the effective date.

(2) The rule at Part 1305 below applies to artificial emberizing materials (embers and ash) containing respirable free-form asbestos that are in commerce on _____ (insert date that is date of publication), or after that date. This prohibition applies to products in inventory as well as to those manufactured on or after the effective date.

The Administrative Procedure Act (5 U.S.C. 553) which governs the matter of effective date for banning rules under the CPSA, provides that a rule should be published 30 days before its effective date unless the Commission provides otherwise for good cause found and published with the rule.

As described in the discussion above on effective date, in a home which has artificial emberizing materials. The Commission is concerned that ordinary household air currents in homes that contain these materials, can cause continuing exposure of consumers to the respirable free-form asbestos in artificial embers and ash. It appears to the Commission, therefore, that these products should be removed from commerce as expeditiously as possible in order to avoid having additional numbers of consumers unwittingly purchase these materials. The Commission finds there is good cause to issue this rule effective on the date of publication.

FINDINGS

1. CPSA Section 8. Section 8(1) and (2) of the CPSA require that, before issuing a consumer product safety rule declaring a product to be a banned hazardous product, the Commission must find (1) that the product presents an unreasonable risk of injury and (2) that no feasible safety standard can adequately protect the public from the unreasonable risk of injury associated with the product.

(a) Unreasonable risk of injury. The regulations are intended to reduce or eliminate the unreasonable risk of injury to the public of cancers such as lung cancer and mesothelioma. The risk is associated with asbestos fibers which are not tightly bound into or encapsulated in the composition of a product. The health risk occurs when asbestos fibers become airborne such as by mixing, sanding, or cleanup operations when using patching compounds, or by the effect of ordinary household air currents on artificial emberizing materials in fireplaces. Tests show that certain malignancies are related to asbestiform minerals; these can arise 20 or more years after occupational exposure. However, also reported are malignancies from indirect, non-occupational exposure. In a recent case, the court recognized a study cited by the Environmental Protection Agency at 40 FR 48295, showing "new biological evidence supporting the significance of single, short-term exposures...One-day inhalation exposures in animal experiments have produced an increase in the incidence of mesothelioma." (National Resources Defense Council v. Environmental Protection Agency, Civ. Nos. 74-1545, 75-2078, D.C. Cir., October 13, 1977).

The information on which the Commission made the determination of unreasonable risk consists primarily of data on exposure of industrial workers to respirable free-form asbestos. Information on exposure of the public to inhalable asbestos in individual consumer products is limited. However, as is evident from the extensive bibliography included herein there is general scientific and medical agreement that there is no known threshold level below which it is safe for people to be exposed to respirable free-form asbestos.

As noted in the proposal, inhalable asbestos in the household from consumer patching compounds and artificial emberizing materials presents a great risk due to the presence in the household of persons, such as children, who may be particularly vulnerable to carcinogens. Because of the long latency period, exposure to inhalable asbestos in the home can be life shortening for children. The Commission notes that consumers are exposed to asbestos from sources other than the banned products. However, consumers who are exposed to asbestos fibers from patching compounds and artificial embers and ash receive additional doses of asbestos and can be assumed to face a greater risk than persons not so exposed, and a greater cumulative risk than if no asbestos were present in the general environment.

In determining that the risk of cancers is unreasonable, the Commission considered the probability that the risk will result in harm and the rules' effect on the products' utility, cost and availability to the consumer.

(b) No feasible safety standard. The Commission is not aware of a technically feasible procedure for removing the hazards of cancer from respirable free-form asbestos in the named products. The Commission believes that not all patching compounds present an unreasonable risk of injury to the public, only patching compounds containing respirable free-form asbestos. The hazard associated with this product is caused by the free form in which the asbestos appears. A safe level of exposure to free-form asbestos is not known. Therefore, it does not appear that a standard for patching compounds containing respirable free-form asbestos is feasible.

The product artificial emberizing materials for fireplaces, containing respirable free-form asbestos is used only in dry form. Thus individual asbestos fibers are never bound together. If the asbestos fibers were coated by another material to bind the fibers, it would no longer be the same product and would not give the desired decorative effect. In considering the dry character of the product and the fact that a safe level of exposure to respirable free-form asbestos is not known, it does not appear that a standard for artificial emberizing materials containing respirable free-form asbestos is feasible.

The Commission believes that no standard can render the defined products non-hazardous and concludes that only banning these products can adequately protect the public from unreasonable risks of injury associated with them.

2. CPSA Section 9(b). Section 9(b) of the CPSA, 15 U.S.C. 2058(b), as amended requires the Commission to consider and take into account in the promulgation of a rule the special needs of elderly and handicapped persons to determine the extent to which such persons may be adversely affected by such rule. The Commission has considered these needs and has determined that no adverse effect on elderly or handicapped persons will result from this regulation. It is in the best interest of the entire public, including the elderly and handicapped, that these hazards be reduced.

3. CPSC Section 9(c). Section 9(c) of the CPSA requires that prior to promulgating a consumer product safety rule the Commission shall consider and shall make appropriate findings for inclusion in such a rule as to: (1) The degree and nature of the risk of injury the rule is designed to eliminate or reduce; (2) the approximate number of consumer products, or types or classes thereof, subject to such rule; (3) the need of the public for the consumer products subject to such rule, and the probable effect of such rule upon the utility, cost, or availability of such products to meet such need; (4) any means of achieving the effect of the order while minimizing adverse effects on competition or disruption or dislocation of manufacturing and other commercial practices consistent with the public health and safety; (5) that the rule is reasonably necessary to eliminate or reduce an unreasonable risk associated with such product; and (6) that the promulgation of the rule is in the public interest (15 U.S.C. 2058(c)).

The findings required by Section 9(c) of the act have been described generally in the preamble are incorporated in sections 1304.5 and 1305.5 of the rules below.

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CONCLUSION

Upon considering the published proposal, the oral and written responses to the proposal and other relevant material, the Commission bans consumer patching compounds and artificial emberizing materials (embers and ash) as set forth below.

Accordingly, pursuant to provisions of the Consumer Product Safety Act (sections 8 and 9, 86 Stat. 1215-17, as amended, 90 Stat. 506, 15 U.S.C. 2057, 2058), new Parts 1304 and 1305 are added to Title 16, Chapter II, Subchapter II, Subchapter B, as follows:

PART 1304—BAN OF CONSUMER PATCHING COMPOUNDS CONTAINING RESPIRABLE
FREE-FORM ASBESTOS

Section

- 1304.1 Scope and application.
- 1304.2 Purpose.
- 1304.3 Definitions.
- 1304.4 Consumer patching compounds as banned hazardous products.
- 1304.5 Findings.

AUTHORITY: Sections 8, 9, 86 Stat. 1215-1217, as amended 90 Stat. 506, 15 U.S.C. 2057, 2058.

Section 1304.1 Scope and application.

(a) In this Part 1304 the Consumer Product Safety Commission declares that consumer patching compounds containing respirable free-form asbestos above the level of 2 asbestos fibers per 1000 particles (5 microns in length), in a sample in such a manner that the asbestos fibers can become airborne under reasonably foreseeable

conditions of use, are banned hazardous products under sections 8 and 9 of the Consumer Product Safety Act (CPSA) (15 U.S.C. 2057 and 2058). This ban applies to patching compounds which are (1) used to cover, seal or mask cracks, joints, holes and similar openings in the trim, walls, ceiling, etc. of building interiors, which after drying are sanded to a smooth finish and (2) are produced and distributed for sale to or for the personal use, consumption or enjoyment of a consumer in or around a permanent or temporary household or residence, a school, in recreation or otherwise.

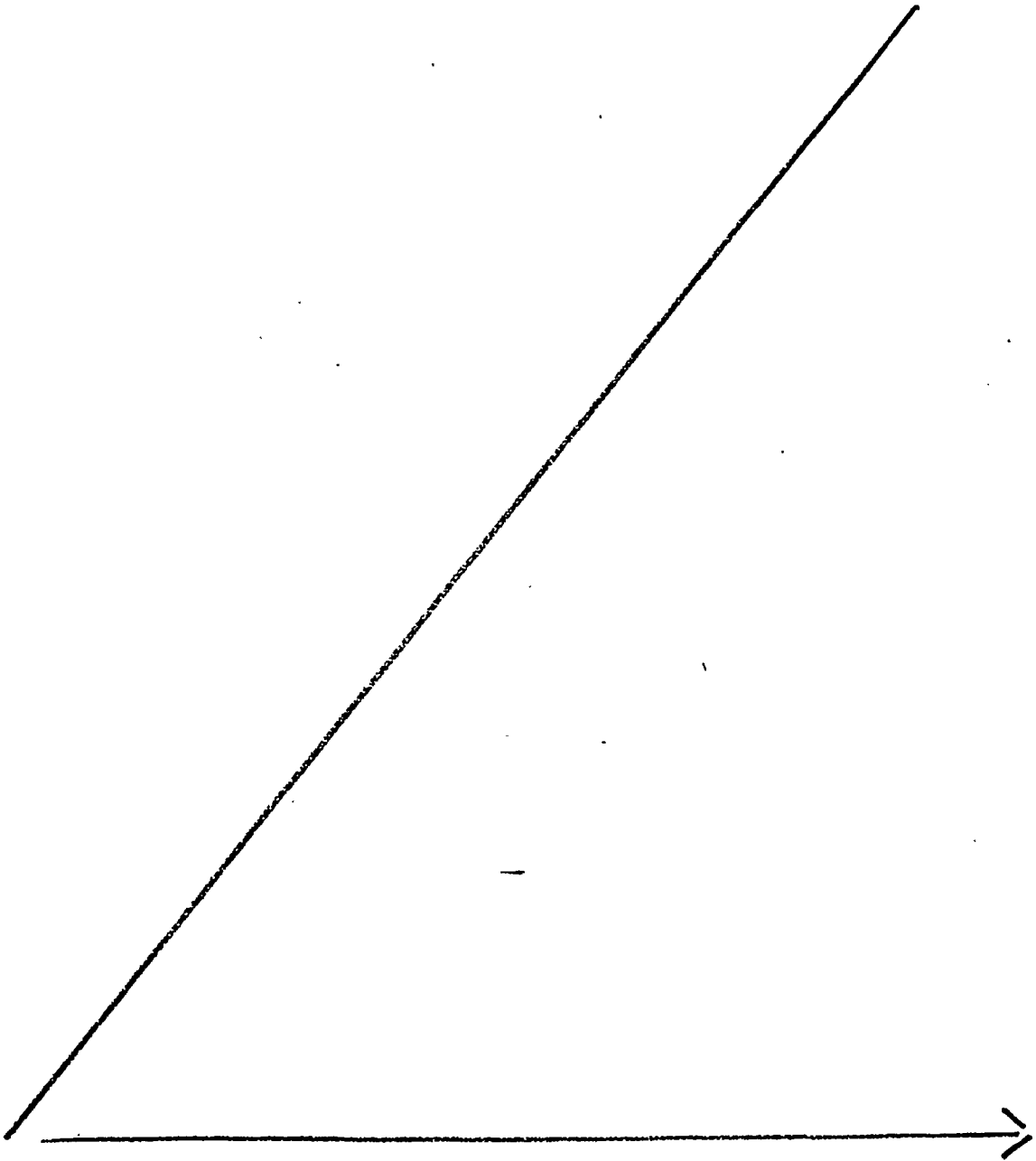
(b) The Commission has found that (1) these patching compounds are being or will be distributed in commerce; (2) that they present an unreasonable risk of injury; and (3) that no feasible consumer product safety standard under the CPSA would adequately protect the public from the unreasonable risk of injury associated with these products. The ban applies to patching compounds described in this Part which are in commerce or being distributed in commerce on or after the effective date of the ban.

(c) Only consumer products are subject to this regulation. Patching compounds which ^a~~are~~ consumer can purchase. Merely labeling a patching compound for industrial use would not exclude such articles from the ban. If the sale or use of the product is facilitated, it is subject to the ban. Patching compounds which are labeled as marketed, and sold solely for industrial use in non-consumer environments are not subject to the ban. In addition to those products which are sold directly to consumers, the ban applies to patching compounds containing respirable free-form asbestos which are used in residences, schools,

hospitals, public buildings or other areas where consumers have customary access.

Section 1304.2 Purpose.

The purpose of this rule is to ban consumer patching compounds



containing respirable, free-form asbestos. These products present an unreasonable risk of injury due to inhalation of fibers which increase the risk of developing lung cancer and mesothelioma, diseases which have been demonstrated to be caused by exposure to asbestos fibers.

Section 1304.3 Definitions.

(a) The definitions in section 3 of the Consumer Product Safety Act (15 U.S.C. 2052) apply to this Part 1304.

(b) "Asbestos" means a groups of mineral fibers composed of hydrated silicates, oxygen, hydrogen and other elements such as sodium, iron, magnesium and calcium in diverse combinations and includes the following minerals; amosite, chrysotile, crocidolite, anthophyllite asbestos, actinolite asbestos, and tremolite asbestos.

(c) "Free-form asbestos" is that which is not bound, woven, or otherwise "locked-in" to a product by resins or other bonding agents, or which can readily become airborne with any reasonably foreseeable use.

(d) "Patching compounds" are mixtures of talc, pigments; clays, casein, ground marble, mica or other similar materials and a binding material such as asbestos which are sold in a dry form ready to be mixed with water, or such combinations in ready-mix paste form.

(e) "Consumer patching compounds" are those at a permissible level of contamination, that are customarily produced or distributed for sale to or for the personal use, consumption or enjoyment of consumers in or around a permanent or temporary household or residence, a school, in recreation or otherwise. The Commission considers that patching compounds

for application in these consumer environments are either distributed for sale to consumers or are for the personal use or enjoyment of consumers.

(f) Permissible Contamination - No more than ^{ONE}~~TWO~~ asbestos fibers (5 microns in length) per 1000 particles in a sample.

Section 1304.4 Consumer patching compounds as banned hazardous products.

On the basis that airborne asbestos fibers present the hazards of cancer, including lung cancer and mesothelioma to the public, consumer patching compounds containing respirable free-form asbestos are banned hazardous products.

Section 1304.5 Findings.

(a) The degree and nature of the risk of injury.

The Commission finds that the risk of injury which this regulation is designed to eliminate or reduce is from cancer, including lung cancer and mesothelioma.

In assessing the degree and nature of the risk of injury to consumers, the Commission has reviewed experimental data and human experience information. In addition, a risk assessment exposure was made. For purposes of this assessment, the Commission considered the use of patching compounds by a consumer, for six hours a day four times a year, to be a high yet reasonably foreseeable exposure. The increased risk of death from respiratory cancer induced by this yearly exposure is estimated at between 10 and 2,000 per million. For five years of exposure at these levels, the risk increases geometrically and is estimated at between 1,000 and 12,000 per million. The lower estimate of 10 per million is closer to the actual risk for a one-year exposure. Nevertheless, in view of

the seriousness of the injury and the cumulative effects of asbestos exposure, even this minimum figure represents an unacceptable risk. The Commission believes that reducing exposure to respirable free-form asbestos in the home represents a substantial decrease in risk to consumers, since, for many people, the major exposure to inhalable asbestos is in the home.

(b) Products subject to the ban.

Consumer patching compounds as defined in Section 1304.3(d), (e), includes such products as drywall spackling compounds and tape joint compounds (commonly known as "joint cement" or "tape joint mud"). The Commission estimates annual shipments of patching compounds subject to the ban at approximately 30-50 million "units," or individual packages, of various sizes from 0.5 to 25 pounds (dry) or 0.5 to 5 gallons (wet). The Commission believes that about half the patching compounds sold in 1977, and intended for sale to or use or enjoyment by consumers, were formulated with asbestos. Many others containing significant levels of asbestos contamination will also be affected by the ban.

(c) Need of the public for the products and effects of the rule on their utility, cost and availability.

Patching compounds, though used primarily by commercial construction workers, are also used by consumers, and are used for the patching and sealing of cracks and joints in and around the household and in other consumer environments either by consumers or professional applicators. The compounds are used to cover areas on gypsum drywall which might otherwise be aesthetically undesirable or which might lead to structural damage, energy loss, lower property value, etc. The asbestos

in these compounds acts as a structural reinforcing agent which helps to reduce cracking and shrinkage of the compound over time, and which renders the compound more pliable or "workable" upon application.

(i) Utility

The elimination of asbestos from these products may result in the increased use or new development of substitutes which have similar properties to those of asbestos, or which impart similar qualities to the product. In current reformulations, asbestos is replaced by a combination of substances, of which the most common is attapulgit, a fibrous clay. Some non-asbestos formulations are reportedly not as effective as those containing asbestos in controlling shrinkage and cracking over time. The workability of some compounds may be diminished as well. This may adversely affect the utility derived from the product by consumers, and especially by professional contractors until such time as improved formulations are developed and available to end-users.

(ii) Cost

Asbestos-free patching compound formulations may require more time to use. This would tend to increase the direct labor costs of residential and other construction and renovation. The expected increase is between 10 and 25 percent. The Commission estimates that the annual labor cost of drywall finishing in these consumer environments is on the order of \$1 billion. The use of non-asbestos patching compound formulations in all applications may increase this cost by \$50-125 million, assuming that roughly half the current labor costs (i.e., that portion now associated with the

use of asbestos formulations) are affected by the 10-25 percent increase. The burden of this cost is expected to fall directly on owners of existing homes who may engage in some renovation, and on purchasers of newly-renovated or newly-constructed homes.

The use of asbestos substitutes may also lead to cost increases in the manufacture of patching compounds. The Commission estimates this cost, which may vary widely from firm to firm, at an average of 5-15 percent. This is made up primarily of increased costs of raw materials and of formulation research and development. It is expected that the price of many patching compounds may rise as a result.

Producers, distributors, and retailers of patching compounds may also have to incur costs associated with the disposal of products in inventory. The Commission estimates that the wholesale value of manufacturers' and distributors' inventories at the time the ban becomes effective will be approximately \$15 million. These costs may be reflected in the prices charged for asbestos-free patching compound formulations, and in the prices of other drywall and paint products.

It appears that, because of competitive pressure from asbestos-containing compounds, producers of asbestos-free formulations have not yet passed on to purchasers their increased costs. If the increased production costs of asbestos-free formulations can be passed on completely as a result of the ban, the total annual price effect for the year following the issuance of the ban may be \$10-60 million. The magnitude of this effect may be reduced significantly in successive years following the issuance of the ban as producers' development costs are amortized, as raw materials become more

widely available, and as price competition is strengthened because of market pressure and economies of scale associated with production.

(iii) Availability

The supply of asbestos substitutes, particularly attapulgite clay and relatively uncontaminated talc, for use in the manufacture of patching compounds may be insufficient to meet the short-run demand which is expected to be stimulated by the promulgation of the ban. Further, many small producers probably lack the technical capability to reformulate their products, and may be forced to cease production, at least until formulations of satisfactory cost and performance are developed. This may affect some professional contractors. In the short run, consumers may be indirectly affected by delays in drywall finishing and building completion.

(d) Any means of achieving the objective of the ban while minimizing adverse effects on completion or disruption or dislocation of manufacturing and other commercial practices consistent with the public health and safety.

The adverse effects of the ban on patching compounds containing asbestos will be reduced by limiting the ban to intentionally added asbestos and identifiable asbestos contamination. This would allow continued production of patching compounds, and would allow many manufacturers to remain in the dry-wall products industry. Other alternatives were considered by the Commission, but none was found that would cause less disruption or dislocation of manufacturing and other commercial practices, consistent with public health and safety.

Conclusion. The Commission finds that this rule, including its effective date is reasonably necessary to eliminate or reduce the unreasonable risk of injury from cancers such as lung cancer and mesothelioma that are associated

with the banned products described herein, that no feasible consumer product safety standard, under the Consumer Product Safety Act can adequately protect the public from this risk, and that promulgation of this rule is in the public interest.

Effective Date: _____ (Insert date that is 30 days after publication of this notice.

Dated: _____

RICHARD E. RAPPS, SECRETARY

PART 1305--BAN OF ARTIFICIAL EMBERIZING MATERIALS
(ASH AND EMBERS) CONTAINING RESPIRABLE
FREE-FORM ASBESTOS

Section

- 1305.1 Scope and application.
- 1305.2 Purpose.
- 1305.3 Definitions.
- 1305.4 Artificial fireplace ash and embers as banned hazardous products.
- 1305.5 Findings.

AUTHORITY: Sections 8, 9, 30(d), Pub. L. 89-573, as amended, Pub. L. 94-284; 86 Stat. 1215-17, as amended, 90 Stat. 506, (15 U.S.C. 2057, 2058)).

Section 1305.1 Scope and application.

In this Part 1305 the Consumer Product Safety Commission declares that artificial emberizing materials (ash and embers) containing respirable free-form asbestos generally packaged in an emberizing kit for use in fireplaces, and designed for use in such a manner that the asbestos fibers can become airborne under reasonably foreseeable conditions of use are banned hazardous products under sections 8 and 9 of the Consumer Product Safety Act (CPSA) (15 U.S.C. 2057 and 2058). This ban applies to artificial emberizing materials available in separate kits or with artificial fireplace logs for use in fireplaces and sprinkled or coated by consumers on the artificial logs to simulate live embers and ashes and give a glowing appearance when subjected to high temperatures. Bags of material containing asbestos that are sold separately to be sprinkled on and under artificial logs to simulate burning and

glowing ashes also come within the scope of this ban.

Section 1305.2 Purpose.

The purpose of this rule is to ban artificial emberizing materials containing respirable free-form asbestos. These products present an unreasonable risk of injury due to inhalation of fibers which increase the risk of developing cancers such as lung cancer and mesothelioma, diseases which have been demonstrated to be caused by exposure to asbestos fibers.

Section 1305.3 Definitions.

(a) The definitions in section 3 of the Consumer Product Safety Act (15 U.S.C. 2052) apply to this Part 1305.

(b) "Asbestos" means a group of mineral fibers composed of hydrated silicates, oxygen, hydrogen and other elements such as sodium, iron, magnesium and calcium in diverse combinations and includes the following minerals; amosite, chrysotile, crocidolite, anthophyllite asbestos, actinolite asbestos, and tremolite asbestos.

(c) "Free-form asbestos" is that which is not bound, woven, or otherwise "locked-in" to a product by resins or other bonding agents, or those from which fibers can readily become airborne with any reasonably foreseeable use.

(d) "Emberizing materials" means an asbestos-containing material generally packed in an "emberizing" kit to be placed under artificial logs in gas-burning fireplace systems or in artificial fireplaces for decorative purposes. The product is also glued to artificial logs, either at a factory or by a consumer using an emberizing kit. (Synthetic logs manufactured of cellulosic products which are consumed

by flames are not included in this definition. Electric artificial logs and artificial ash beds used in electric fireplaces, which do not contain respirable free-form asbestos are not included in this definition).

Section 1305.4 Artificial fireplace ash and embers as banned hazardous products

On the basis that airborne asbestos fibers present the hazards of cancers such as lung cancer and mesothelioma to the public, artificial fireplace ash and embers containing respirable free-form asbestos are banned hazardous products.

Section 1305.5 Findings.

(a) The degree and nature of the risk of injury.

The Commission finds that the risk of injury which this regulation is designed to eliminate or reduce is from cancer, including lung cancer and mesothelioma.

Measurements are not available of the amounts of asbestos in the air from asbestos-containing emberizing materials in homes. However, it appears that the amount of airborne asbestos in such homes would increase when air currents in the home are created by downdrafts from a fireplace chimney or other activities that stir air in any room. Since emberizing materials may contain up to 50 percent asbestos, which if not permanently bound into artificial fireplace logs would be in respirable form, the risk associated with emberizing materials is considerable since it continues to exist 24 hours a day.

(b) Products subject to the ban.

Artificial emberizing materials are decorative simulated ashes

or embers, used in certain gas-burning fireplace systems, which glow to give the appearance of real burning embers. The material is sprinkled on or glued to gas logs, or sprinkled on fireplace floors.

(c) Need of the public for the products and effects of the rule on their utility, cost, and availability.

Artificial fireplace emberizing material serves a strictly decorative purpose and does not materially affect the actual performance of the gas system in terms of its ability to provide heat. A certain degree of aesthetic desirability exists, however, since the product "system" itself (the gas log, ashes, and embers) is intended to simulate burning wooden logs. Gas logs may be sold with artificial emberizing material attached at the factory (the log commonly referred to as being "frosted"), or with the "embers" in a separate kit, often mixed with simulated "ashes." Virtually all gas logs are either frosted or packaged with an emberizing kit; however, the majority of gas logs produced in 1977 were packaged with non-asbestos-containing emberizing kits. The Commission estimates annual sales of artificial gas logs at approximately 100,000 units. Some 25,000-30,000 of these would be subject to the ban. Approximately 100,000 gas logs frosted or treated by consumers with asbestos are estimated to be in existence. The Commission believes that the majority of gas logs are sold with emberizing kits; this gives the consumer a choice as to whether or not to use the artificial embers and ashes.

(i) Utility.

Manufacturers of artificial gas log emberizing material are currently using four substitutes for asbestos in their products: vermiculite, rock wool, mica, and a synthetic fiber. None of the

four is claimed to be as aesthetically effective as asbestos. Thus, the utility derived by consumers from some gas-burning fireplace systems may be adversely affected.

(ii) Cost.

No effect on the overall price level of gas logs is anticipated as a result of the ban. The average price of emberizing kits may rise somewhat; the Commission estimates the total price effect of the ban on consumers at under \$25,000.

(iii) Availability.

The Commission believes that all producers of artificial emberizing material will have eliminated asbestos from their products by the time the ban becomes effective. No significant impact on the availability of asbestos substitutes to producers nor on the availability of gas logs or emberizing kits to retail dealers and consumers is expected as a result of the ban.

(d) Any means of achieving the objective of the ban while minimizing adverse effects on competition or disruption or dislocation of manufacturing and other commercial practices consistent with the public health and safety.

The Commission believes that there will be minimal disruption to the market for artificial emberizing materials as a consequence of the ban and that no further reduction in adverse effects is feasible.

Conclusion. The Commission finds that this rule, including its effective date, is reasonably necessary to eliminate or reduce the unreasonable risk of injury from cancers such as lung cancer and mesothelioma that are associated with the banned products described herein, that no feasible consumer product safety standard under the

Consumer Product Safety Act can adequately protect the public from this risk, and that promulgation of this rule is in the public interest.

Effective Date: _____ (insert date that is the date of publication of this notice.)

DATED: _____

RICHARD E. RAPPS, SECRETARY

B

UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT
SAFETY COMMISSION
WASHINGTON, D.C. 20207

TO : Francine Shacter, Office of Program Management

DATE:

FROM : Charles M. Jacobson, CER

SUBJECT: Response to Comments Received on Proposed
Asbestos Ban

CC10-77-2, Thomas Paint

This comment raises the question that since the only hazard is to the professional user why bar over the counter sales to the consumer. It should be pointed out that while perhaps the greatest hazard is to the professional user once the asbestos has been freed by sanding the hazard remains in the form of the residual dust from sanding to which the consumers are exposed by living in the home. ✓

CC10-77-3, Bondex

In this comment, Bondex suggests reconsideration of either 180 day effective date or possibly a staggered effective date with a 30 day date for manufacturers, 90 days for distributors and 180 days for retail outlets to facilitate clearing all of the distribution channels. From a compliance and enforcement standpoint, we find the staggered effective date suggestion very attractive in that it would greatly reduce the Commission's burden in dealing with those products which are frozen in the channels of commerce by an effective date which bans both manufacturers and the sale simultaneously. We will be discussing

this further in another memorandum regarding identification and enforcement problems.

CC10-77-13, Casselgren

In his comment, Mr. Casselgren suggests that the Commission use its authority to keep banned asbestos containing products out of international commerce. We have attached a copy of October 7 letter from Secretary Kreps of the Department of Commerce, which addresses the question.

CC10-77-14, Johns Manville

This comment raises the point that the proposal fails to set forth criteria for determining if asbestos is present. We agree with the comment and suggest that some finite definition must be added to the final ban. We would suggest following the commentors suggestion of limiting the asbestos comment to 1% following the lead of EPA in their emission standard. ✓

CC10-71-21, Dap

This comment requests clear definition of consumer patching compound. We feel that this has been sufficiently responded to in Bea Pitkin's 10/7/77 draft. Commentors suggest regulation of asbestos levels in a similar manner is used in lead in paint which refer to the previous comment for a response to this. The commentor also raises the problem of products being frozen in commerce by manufacturing and sale and suggest that the ban be limited to those products manufactured after the effective date. We are concerned about the same problem and will be addressing it further in a memorandum regarding the identification and recall problems. ✓



THE SECRETARY OF COMMERCE
Washington, D.C. 20530

OCT 07 1977

Dear Mr. Byington:

Please excuse my delay in replying to your letter of June 24 asking that the Department of Commerce place TRIS and TRIS-treated garments on the export control "Commodity Control List" in order to generate information about exports of such products. A thorough response to your letter required several contacts with other agencies.

Export statistics are compiled by the Bureau of Census from information contained on Shipper's Export Declarations, which must be filed for any export valued at \$250.00 or over. All commodities are assigned Schedule B numbers that must appear on this Declaration. Currently, there are no separate Schedule B numbers for TRIS-treated commodities, whereas there are hundreds of numbers for goods that could be treated with TRIS.

To obtain separate information on TRIS-treated commodities would require extensive changes in the basic reporting reference as well as increase our statistical reporting time and costs. Even if we were to make these changes it is very questionable that the export information would be reliable, since TRIS-treated garments appear no different from other garments, and we would be solely dependent upon the exporter to assign the proper Schedule B number. In this circumstance, I do not believe that the creation of separate Schedule B numbers for TRIS and TRIS-treated items can be justified.

You have suggested that controls be placed on exports of these commodities. As you know, the Export Administration Act of 1969 authorizes controls on exports for reasons of short supply, national security, or foreign policy. The first two reasons are clearly not applicable to TRIS and TRIS-treated garments. So far as foreign policy is concerned, the Department of State has advised me that controls on TRIS and TRIS-treated garments are not, in the language of the statute, "necessary to further

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11. 12. 27 71 K



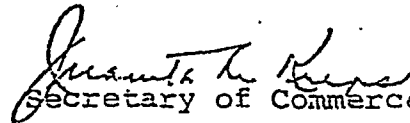
BON - 01906

significantly the foreign policy of the United States and to fulfill its international responsibilities." Additionally, State does not think it appropriate for the United States to impose its domestic safeguards on foreign countries. I, therefore, do not believe that there is any legal justification for controls on TRIS and TRIS-treated garments.

As an alternative, you may wish to consider notifying foreign governments through the Department of State of the Commission's action on TRIS. Such notification could contain a full report of the medical evidence demonstrating TRIS to be a carcinogen. This would permit foreign authorities to make their own informed decisions about controlling TRIS.

If you wish to pursue this approach, we shall be pleased to assist you in the preparation and transmission of such notification.

Sincerely,


Secretary of Commerce

Honorable S. John Byington
Chairman
U.S. Consumer Product Safety Commission
Washington, D.C. 20207

UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT
SAFETY COMMISSION

TO : John Liskey, EX-P

DATE: Oct. 26, 1977

FROM : Dale Ray, HICP



SUBJECT: Proposed Asbestos Ban: Section 9 Findings

Attached is some revised wording for the Commission's findings under Section 9 of the CPSA to be published in the Federal Register with the ban on asbestos-containing patching compounds and artificial emberizing material. Please contact me as soon as possible with any comments or questions.

Attachment

cc: Bea Pitkin, OGC

BON - 01908

BAN ON PATCHING COMPOUNDS AND
ARTIFICIAL EMBERIZING MATERIALS CONTAINING ASBESTOS:
SECTION 9(c) FINDINGS

- (a) The degree and nature of the risk of injury.

To be submitted by ESH.

- (b) The approximate number of consumer products, or types or classes thereof subject to the ban.

This ban covers two types of consumer products: patching compounds and artificial fireplace emberizing material. The term "patching compounds" includes such products as drywall spackling compounds, and tape joint compounds (commonly known as "joint cement" or "tape joint mud), which are used to seal cracks, holes or joints in walls and ceilings. "Artificial emberizing materials" are decorative simulated ashes or embers, used in certain gas-burning fireplace systems, which glow to give the appearance of real burning embers. The material is sprinkled on or glued to gas logs, or sprinkled on fireplace floors.

The Commission estimates annual shipments of patching compounds at approximately 30-50 million "units," or individual packages, of various sizes from 0.5 to 25 pounds (dry) or 0.5 to 5 gallons (wet). The Commission believes that about half the patching compounds sold in 1977, and intended for sale to or use or enjoyment by consumers, will be formulated with asbestos. Thus, as many as 25 million units of products may be affected by the ban.*

Gas logs may be sold with artificial emberizing material attached at the factory (the logs commonly referred to as being "frosted"), or with the "embers" in a separate kit, often mixed with simulated "ashes." Virtually all gas logs are either frosted or packaged with an emberizing kit; however, the majority of gas logs produced in 1977 were packaged with non-asbestos-containing emberizing kits. The Commission estimates annual sales of artificial gas logs at approximately 100,000 units. Some 25,000-30,000 of these would be subject to the ban. Approximately 100,000 gas logs frosted or treated by consumers with asbestos are estimated to be in existence. The Commission believes that the majority of gas logs are sold with emberizing kits; this gives the consumer a choice as to whether or not to use the artificial embers and ashes.

*NOTE: This language assumes that intentionally-added asbestos is to be banned or limited; alternate words to the effect that substantially all patching compounds are covered would be necessary if this assumption is incorrect.

- (c) The need of the public for the consumer products subject to the ban, and the ban's probable effects upon the utility, cost or availability of such products to meet such need.

Patching compounds, though used primarily by commercial construction workers, are also used by consumers, and are used for the patching and sealing of cracks and joints in and around the household and in other consumer environments. The compounds are used to cover areas on gypsum drywall which might otherwise be aesthetically undesirable or which might lead to structural damage, energy loss, lower property value, etc. The asbestos in these compounds acts as a structural reinforcing agent which helps to reduce cracking and shrinkage of the compound over time, and which renders the compound more pliable or "workable" upon application.

Artificial fireplace emberizing material serves a strictly decorative purpose, and does not materially affect the actual performance of the gas log or its gas jets in terms of its ability to provide heat. A certain degree of aesthetic desirability exists, however, since the product "system" itself (the gas log, ashes, and embers) is intended to simulate burning wooden logs.

The elimination of asbestos from these products may result in the increased use or new development of substitutes which have similar properties to those of asbestos, or which impart similar qualities to the product. In current reformulations, asbestos is replaced by a combination of substances, of which the most common is attapulgite, a fibrous clay. Some non-asbestos formulations are reportedly not as effective as those containing asbestos in controlling shrinkage and cracking over time. The workability of some compounds may be diminished as well. This may adversely affect the utility derived from the product by consumers, and especially by professional contractors until such time as improved formulations are developed and available to end-users.

Asbestos-free patching compounds may require more time to use. This would tend to increase the direct labor costs of residential and other construction and renovation. The expected increase is between 10 and 25 percent. The Commission estimates that the annual labor cost of drywall finishing in these consumer environments is on the order of \$1 billion. The use of non-asbestos patching compound formulations in all applications may increase this cost by \$50-125 million, assuming that roughly half the current labor costs (i.e., that portion now associated with the use of asbestos formulations) are affected by the 10-25 percent increase. The burden of this cost is expected to fall directly on owners of existing homes who may engage in some renovation, and on purchasers of newly-renovated or newly-constructed homes.

The use of asbestos substitutes may also lead to cost increases in the manufacture of patching compounds. The Commission estimates this cost, which may vary widely from firm to firm, at an average of 5-15 percent. This is made up primarily of increased costs of raw materials and of formulation research and development. It is expected that the price of many patching compounds may rise as a result.

to incur costs associated with the disposal or recall of products in inventory, and, to a lesser extent, the recall of some merchandise in the hands of consumers and contractors. The Commission estimates that the wholesale value of manufacturers' and distributors' inventories at the time the ban becomes effective will be approximately \$15 million. These costs may be reflected in the prices charged for asbestos-free patching compound formulations, and in the prices of other drywall and paint products.

It appears that, because of competitive pressure from asbestos-containing compounds, producers of asbestos-free formulations have not yet passed on to purchasers their increased costs. If the increased production costs of asbestos-free formulations can be passed on completely as a result of the ban, the total annual price effect for the year following the issuance of the ban may be \$10-60 million. The magnitude of this effect may be reduced significantly in successive years following the issuance of the ban as producers' development costs are amortized, as raw materials become more widely available, and as price competition is strengthened because of market pressure and economics of scale associated with production.

The supply of asbestos substitutes, particularly attapulgite clay, for use in the manufacture of patching compounds may be insufficient to meet the short-run demand which is expected to be stimulated by the promulgation of the ban. Further, many small producers probably lack the technical capability to reformulate their products, and may be forced to cease production, at least until formulations of satisfactory cost and performance are developed. This may affect some professional contractors. In the short run, consumers may be indirectly affected by delays in drywall finishing and building completion.

Manufacturers of artificial gas log emberizing material are currently using four substitutes for asbestos in their products: vermiculite, rock wool, mica, and a synthetic fiber. None of the four is claimed to be as aesthetically effective as asbestos. Thus, the utility derived by consumers from some gas-burning fireplace systems may be adversely affected.

No effect on the overall price level of gas logs is anticipated as a result of the ban. The average price of emberizing kits may rise somewhat; the Commission estimates this price effect at under \$25,000.

The Commission believes that all producers of artificial emberizing material will have eliminated asbestos from their products by the time the ban becomes effective. No significant impact on the availability of asbestos substitutes to producers or on the availability of gas logs or emberizing kits to retail dealers and consumers is expected as a result of the ban.

- (d) Any means of achieving the objective of the ban while minimizing adverse effects on competition or disruption or dislocation of manufacturing and other commercial practices consistent with the public health and safety.

The adverse effects of the ban on patching compounds containing asbestos will be reduced by limiting the ban to intentionally added asbestos and setting an effective date 180 days after promulgation. The 180 day period will accommodate small manufacturers who may have difficulty in reformulating and will therefore allow these small manufacturers to maintain a competitive posture relative to the larger manufacturers that have already reformulated their products or have the capacity to do so well within the 180 day period. Limiting the ban to asbestos intentionally added to patching compounds will avoid complicated and costly production controls and testing procedures. The Commission believes that there will be minimal disruption to the market for artificial emberizing material as a consequence of the ban and that no further reduction in adverse effects is feasible.

UNITED STATES GOVERNMENT

U.S. CONSUMER PRODUCT
SAFETY COMMISSION

Memorandum

TO : John Liskey, EX-P

DATE: Oct. 19, 1977

FROM : Dale Ray, HICP 

SUBJECT: Response to Asbestos Proposal Comments

We have reviewed the comments received thus far on the proposal to ban patching compounds and artificial emberizing material containing free asbestos. Some of the comments offered data which will be useful in the preparation of our economic impact reports and the Commission's findings under Section 9 of the CPSA. Many raised economic questions and issues regarding the language of the proposal in the areas discussed below. References to specific commentors are noted in the left margin.

Scope and Definitions

(Rustic Crafts)
One commentor, a manufacturer of electric artificial fireplace logs, suggested that electric logs should be explicitly excluded from the ban, as are synthetic (combustible) logs. Electric logs use no emberizing material and therefore are not of interest to the Commission in this banning action. We believe that the wording of the proposal is not sufficiently clear to convey the Commission's intent. Confusion over such wording can be and has been a source of adverse publicity about all decorative logs; sales of all types have reportedly been lost as a result. To avoid unfair treatment of these products, we suggest that the Federal Register notice use the words "artificial gas logs" or "gas-burning fireplace systems" where appropriate, rather than "artificial logs" or "decorative logs". Further, we suggest that electric logs be treated the same as synthetic logs in whatever exclusion is printed.

(Thomas; Allied; Norton)
A similar question was raised concerning the types of patching compounds covered by the ban. We believe that the term, "tape joint compound" and "spackling compound" should be used to describe the types of products covered by the broader term "patching compounds" in the Federal Register notice. Some of the comments evidenced confusion on this point.

BON - 01913

(DAP) One commentor suggested changes in the wording of the definition in 1304.1(a) and 1304.3(d) to avoid confusion over products which may contain asbestos but which are not sanded after drying. We believe that 1304.1(a) is sufficiently clear to show that these products are not covered by the ban.

(Thomas) One of the comments briefly discussed the distinction between "wet" versus "dry" patching compound. We believe the wording of Part B of the proposal adequately reflects the Commission's intention to regulate both varieties.

(Thomas; Bondex; Johns-Manville; Union Carbide; Paco) Several comments raised the general issue of professional versus consumer use (application) of patching compounds, calling for clearer definitions. There are certainly major differences in the economic impacts of a ban on consumer-applied compounds and a ban on consumer- and professionally-applied compounds. These differences are discussed in our Environmental and Economic reports. The wording of the proposal clearly indicates that both are covered insofar as they are either available to or intended for use or enjoyment by consumers.

(Johns-Manville; Union Carbide; DAP; Paco) Some comments discussed the ubiquity of asbestos in constituent materials of patching compounds (mostly talc), and even in water that might be mixed with "dry" compounds. It is correctly pointed out that the ban, as proposed, will eliminate all consumer patching compounds from the market, rather than just those formulated with asbestos, since all compounds probably contain a certain amount of asbestos by way of contamination. The feasibility of a ban on intentionally-added asbestos and perhaps also on highly-contaminated compounds (above a minimum percentage content by weight) has been discussed with regard to this ban. We believe that this may be a reasonable course of action which can lessen the adverse economic impact of the ban. Several of the largest patching compound producers currently have asbestos-free formulations on the market. The information we have been able to get from other manufacturers indicates that the current minimum feasible level for intentional asbestos addition in their products is on the order of from 0.5 to 2.0 percent. Several compounds produced in the past several years have reportedly contained up to 8 to 10 percent asbestos, including contamination. It seems, however, that contamination can be controlled to an extent, and that some compounds of "acceptable" performance have been produced with relatively low contamination levels. Such a ban would certainly be clearer, particularly from an enforcement standpoint, than it would be under the present proposal. It might also lessen the economic impact of the ban on the producing industry. There may also, however, be problems with the accuracy and reproducibility of the known techniques of measurement of asbestos in these products. Compliance and Enforcement and the Office of General Counsel may wish to comment further on this potential course of action.

Economic Impacts

(Southeast
Fireplace)

A distributor of gas logs commented that the proposed ban may have adverse effects on manufacturers, distributors, and retailers that the Commission should be aware of in its deliberations on this ban. Section 9(c) of the CPSA requires the Commission to consider the economic effects of its actions. Our study indicates that the effects on the gas log industry are of the following types: a) cost, availability, and utility effects associated with the purchase and use of asbestos-substitutes in new production and for the retrofit of some existing logs; and b) effects on industry sales and profits, claimed to be primarily a result of adverse publicity surrounding the ban. The nature and extent of the effects on the industry are discussed in the Environmental and Economic Assessment reports which are considered by the Commission in the process of reaching a decision about the ban. Other points of interest concerning the patching compound-producing industry on which comments were received are discussed below.

(Better
Bond;
U.S.
Gypsum)

One patching compound manufacturer claimed that some firms in that industry will go out of business should the ban be promulgated. As noted below, our studies indicate that some small producers may not have the technical capability to reformulate their products satisfactorily for several months from the time of publication of the ban. Thus, some may go out of business, or cease production temporarily, until such reformulation is achieved. This assumes that the ban will proscribe deliberate formulation with asbestos and limit contamination. The competitive advantage currently enjoyed by some sellers of asbestos-formulated compounds would disappear as a result. It may, in fact, be reversed. Reformulation expertise would become a prime factor in the introduction of products which would be competitive in terms of price, availability, and performance with those of the major manufacturers, who have more experience in non-asbestos formulation technology. U.S. Gypsum Company has stated that it may be able to offer non-exclusive licenses to produce and market its patented non-asbestos formulation. This may be a method of avoiding the necessity of developing non-asbestos formulations for many small companies.

(Bondex)

Another patching compound manufacturer, in support of the ban under the CPSA, pointed out that a repurchase under the FHSA would have a "drastic financial impact on manufacturers." It appears that this refers to a repurchase through all levels of distribution, including the return of products by consumers to retailers. As proposed, the ban involves no mandatory repurchase program. Retailers and distributors may, however, be able to return inventoried merchandise or submit proof-of-purchase to manufacturers for credit or refund in some cases. This would probably have a serious impact on all manufacturers under the "no contamination limit" interpretation; the total impact would be considerably less if only asbestos-formulated products are concerned. Even if the latter course is pursued, however, some retailers may return non-asbestos-formulated merchandise by mistake or just to be safe. The costs associated with this phenomenon may be significant for some firms.

(Johns-
Manville;
Better
Bond)

Two commentators discussed potential cost effects of the ban on patching compounds other than those relating to the product itself. One patching compound producer estimated the increased "workload" associated with the professional application of non-asbestos formulations at 60 percent. We have investigated the potential increase in direct labor costs associated with existing asbestos and non-asbestos formulations; we estimate a 10 to 25 percent average increase as a result of switching from the former to the latter. Other costs may accrue to professional users of the product should different application tools be needed or should some jobs have to be redone due to the relatively poor shrink- and crack-resistance of some non-asbestos formulations.

(Allied)

One company which may be adversely affected by the proposed ban reports that attapulgit, one of the prime substitutes for asbestos in patching compounds, is in "limited supply" and that some small manufacturers may have difficulty in obtaining that material. Other industry sources have reported this same problem. The larger patching compound producers, who already have asbestos-free formulations on the market, are not expected to have as much difficulty in obtaining substitute materials.

(Allied;
Better
Bond)

Two manufacturers discussed the ban's potential adverse effect on the utility of the product. One expressed a belief that non-asbestos formulations are inferior in performance to asbestos formulations. Another reinforced that belief, reporting that the absence of asbestos formulations may prompt workmen to add their own asbestos to the product to help prevent cracking when wall joints are covered. As mentioned at the August 15 public meeting, there is widespread agreement that at least some existing non-asbestos formulations are less desirable, from a performance standpoint, to professional contractors; most consumer applicators are not expected to perceive a significant difference in the product's performance. Some of the larger producers feel that their non-asbestos formulations perform equally as well as asbestos-containing ones; our study indicates that these "mature" reformulations are likely to be more satisfactory than the more recent reformulations offered by some smaller manufacturers.

Effective Date

Four comments have been received concerning the effective date of the ban on patching compounds. As proposed, the manufacture and sale of asbestos-containing compounds would be prohibited 30 days after publication of the ban in the Federal Register.

(Mass
PIRG)

One commentor suggested that the effective date be shortened to zero, i.e., upon publication of the ban. At the time of publication, some manufacturers, distributors, and retailers may still be producing or have in inventory compounds formulated with asbestos. In general, when no "imminent hazard" exists, the primary purposes of having an effective date at some point in the future are to allow producers sufficient time to make necessary changes to their products, and to allow existing merchandise in inventory at various levels of distribution to be cleared. This tends to reduce any disruption of the industries involved that may result from a CPSC action. We do not believe that an immediate effective date is warranted in this case since no "imminent hazard" has been declared and since there may be significant adverse economic effects on the industry under an immediate ban.

(Georgia-
Pacific;
DAP;
Bondex)

Three patching compound manufacturers suggested that the effective date should be set later than 30 days after publication so that existing inventories could be depleted. One requested that the ban cover only those products manufactured after the effective date. Another requested a step-wise set of effective dates of 30, 90, and 180 days for manufacturers, distributors, and retailers respectively. These comments correctly note that manufacturers may have to repurchase banned products from distributors, retailers, and perhaps from some contractors. They also note that the financial impact of the ban on the industry, especially on some small manufacturers, who may bear a disproportionate amount of the burden of a voluntary recall from distribution, might be lessened if the effective date is extended beyond 30 days after publication of the ban.

We view a 180-day effective date as a much more equitable approach than the 30-day proposed lead time. It would tend to reduce, but not eliminate, the hardships on small businesses in the patching compound-producing industry. For most companies that have not started reformulating without asbestos, 180 days may actually be insufficient. Several firms have claimed required development times (i.e., for reformulation only, not including time for products to get through the channels of distribution) of over a year. To the extent that small companies must temporarily cease production as a result of the ban, some of the larger firms may be afforded a competitive advantage in regional markets ordinarily served by the smaller producers.

No comments were received concerning the effective date for artificial emberizing material, which is immediately upon publication of the ban in the Federal Register. We anticipate no significant adverse economic impacts as a result of this proposed effective date.

Other Comments

(Johns-
Manville)

One commentor questioned our reporting of the use of fibrous glass as a substitute for asbestos in artificial emberizing material. That fibrous glass was being considered as an asbestos substitute was mentioned to us by a trade association representative before the proposal was issued. We have since been able to locate no manufacturer or distributor of emberizing material that uses or knows of the use of fibrous glass for this purpose. Fibrous glass is not now viewed as suitable for use on gas logs as an emberizing material. It appears that most manufacturers are now using a synthetic fiber (i.e., Johns-Manville's Cerafiber), rock wool, vermiculite, or a combination of the three. Thus, the wording of Part C should be modified accordingly, and the reference to fibrous glass deleted.

(Forshaw)

One fireplace equipment manufacturer, in questioning the Commission's assessment of the hazard associated with artificial embers on gas logs, stated that all gas logs "must be burned in natural (vented) wood-burning fireplaces..." This is not correct: we know of at least one company whose gas logs are certified by the American Gas Association for unvented use. Individuals may also install gas logs intended for venting in unvented locations. Even if gas logs are installed in vented fireplaces, downdrafts could still occur, presenting a potential hazard if asbestos fibers are released. Further, respirable fibers may be released during handling and installation. We are not sure that it is necessary that the ban cite these hazard patterns specifically.

UNITED STATES GOVERNMENT
Memorandum

U.S. CONSUMER PRODUCT
SAFETY COMMISSION
WASHINGTON, D.C. 20207

TO : Francine Shacter, OPM

DATE: October 21, 1977

FROM : Georg Maisel, ESHS

SUBJECT: Federal Register, Vol. 42, No. 146: CPSC Respirable Free-Form Asbestos:
Proposed Rulemaking. July 29, 1977

Attached are draft responses prepared by Mrs. June Thompson and Dr. Steven Bayard to comments received for the subject proposed asbestos banning regulation.

As requested by OPM, each comment has been addressed separately as assigned to either Bayard or Thompson, although there are some overlapping responses (eg. comments regarding asbestos substitutes).

Dr. Nicholson, Mt. Sinai, has reviewed the health-related comments, but has not had time to prepare his written responses since he was in South Africa for a week and, more recently, in Cincinnati. Dr. Nicholson indicated that his written responses will be mailed to us early next week. Bea Pitkin (OGC) is aware of this delay and thinks, in view of the importance of this authority's comments, the late receipt of his responses can be accommodated.

Because of our dearth of typing help, and the close deadline, we are attaching the mag cards for each of these responses.

Thompson - ESHS

RESPONSIBILITY FOR RESPONSE TO COMMENTS RECEIVED ON THE
PROPOSED ASBESTOS BAN - Due: October 21, 1977.

ccl0-77-2: Thomas Paint:

(2) Statement that lung cancer was not significantly increased among asbestos workers with no history of cigarette smoking.

cc:10-77-3: Bondex:

((1) Statement that Commission data is based on occupational statistics; therefore, it is difficult to support the statement, "for many people the exposure to inhalable asbestos is in the home".

ccl0-77-7: Allied:

(5) Raw material used as substitute materials have not been approved - raw materials may be of a fibrous nature.

ccl0-77-9: Phila. Quartz:

Suggestion that a change be made in definition of "silica".

cc:10-77-14: Johns-Manville:

(4) Comment that too little attention may have been given to the issue of potential hazards of the substitute materials that will replace asbestos.

(6) Use of OSHA F. R. proposal background material - criticism by J-M.

(11) Statement about similarity of fibrous glass to chrysotile.

ccl0-77-15: Public Citizen:

(1) Questions and comments re: definitions of asbestos and asbestos fiber.

ccl0-77-19: Forshaw:

(1) Feels there is not a hazard associated with emberizing materials.

ccl0-77-20: HEW:

Concern about the use of fiberglass as a substitute material in emberizing materials.

ccl0-77-22: Vanderbilt Co.:

Questions information contained in a letter from Public Citizen - asbestos definition.

Thomas Paint Co.

(3) Response to the comment ". . . that the main problem occurs when someone employed . . . as a sander also smokes, and that "lung cancer was not significantly increased among asbestos workers with no history of cigarette smoking."

While data from an epidemiological study of asbestos insulation workers indicated there was an increased risk of death from lung cancer among smokers, it also indicated there was ^{also} an increased risk of death from other asbestos-related diseases, including asbestosis, among non-smokers. ⁽¹⁾ Data also suggests that the high risk of mesotheliomas (cancers of the pleura and peritoneum) from asbestos exposure appears to be unrelated to smoking. ^(1, 2)

DRAFT

- (1) Hammond and Selikoff: "Relation of Cigarette Smoking to Risk of Death of Asbestos-Associated Disease Among Insulation Workers in the U.S." Biological Effects of Asbestos. WHO, IARC, Lyon, 1973.
- (2) Dept. of Labor: Occupational Safety & Health Administration: Occupational Exposure to Asbestos.: Notice of Proposed Rulemaking. F.R. vol.40, no.197, Oct. 9, 1975.

DRAFTBondex

Statement that it appears that Commission data is based on occupational statistics, it probably would be difficult to document the statement that "for many people the major exposure to inhalable asbestos is in the home" particularly in view of exposure to asbestos which exist in the environment today.

While it is true that much of the Commission data on asbestos-related disease are based on occupational statistics, a risk assessment was made of consumer exposure to respirable asbestos in patching compounds during mixing, sanding and cleanup operations which estimated the increased risk of lung cancer from such exposure in the home. A report of asbestos in consumer spackling / patching compounds indicated that ~~a~~ significant level of respirable free-form asbestos fibers were detected in rooms adjacent to that where the actual patching and sanding operations had occurred/as well as the individual performing the patching job.

In many areas of the Country (nonurban), there appears to be a relatively low background level of asbestos.* Therefore, exposure in the home to asbestos fibers released from consumer products might represent the major exposure.

*Rohl, A., Langer, A. and Selikoff, I.: "Environmental Asbestos Pollution Related to Use of Quarried Serpentine Rock". Science, v.196, p.1319-1322, 17 June 1977.



cc-10-77-3

Bondex: (Contd.):

Dr. Paul Kotin, Johns-Manville, stated (in a presentation before the Commission, June 9, 1977) that young children are particularly vulnerable to exposure to carcinogens* and clearly their major exposure to inhalable asbestos would be in the home. The Commission therefore feels it is essential to minimize, to every extent possible, exposure to respirable asbestos in consumer products.

DRAFT

*F. R. 42, No. 146, P. 38786, 29 July 1977.

Allied:

Comments The raw material used to replace asbestos has not been approved and since this material is of a fibrous nature, this product might be banned.

In assessing asbestos substitutes, data available to the Commission indicates that a number of substances may be used, many of which are not fibrous. For the fibrous clay minerals which may be used as asbestos substitutes, the Commission is aware that there is a lack of conclusive data on the hazard potential associated with these minerals. However, the Commission has proposed a study to evaluate the risk of inhalation exposure to such small mineral fibers.

DRAFT

CC-10-77-10-9

Phila. Quartz

Comment: That the terminology, "silica" should not be used and references should be changed to "silicon" - concern that the erroneous impression may be created that naturally - occurring or synthetic silica is a component of asbestos.

The Commission concurs that the term "silica" should not be used but rather, "silicates" since asbestos is a generic term used to describe a number of naturally - occurring hydrated mineral silicates.

Therefore, on p. 38783, under Part A, Background, should read:

"Asbestos" is a general term for any of several varieties of mineral fibers composed of hydrated silicates, and other elements such as sodium, calcium . . . etc." Also under 1304.3 Definitions (b) "Asbestos" means . . . composed of hydrated silicates and other elements such as . . ."

DRAFT

BON - 01925

J-M (Johns-Manville)

(4) The commentor expresses concern that ". . . too little attention may have been given to the issue of potential hazards of the substitute materials." That will replace asbestos.

The Commission shares the ~~Commentor's~~ concern expressed in the comment about the potential hazards of substitute materials. There is, presently however, insufficient data on which to base an assessment of the potential hazards associated with asbestos substitutes. There are studies now, or are proposed to be undertaken, which will assess the potential inhalation hazards associated with certain man-made mineral fibers, including ceramic fibers (reported to be an asbestos substitute for asbestos emberizing material). In addition, the Commission has under consideration an inhalation study of other small mineral fibers, including fibrous clay minerals used as substitutes in consumer patching compounds.

DRAFT

BON - 01926

DRAFT

Johns-Manville

(6) Use of OSHA F. R. proposal background material: Criticism by J-M.

In a June 3, 1977 Memo - Hehir to Clay - ES presented a literature review and analysis and a risk assessment, as well as the OSHA F. R. background data.

Parts of all 3 documents eventually were utilized in the F. R. proposal.

As for the use of the OSHA F. R. proposal material, Dave Melnick, OGC, indicated that since the OSHA F. R. data had already been subject to public scrutiny, it would be more defensible.

However, we offer the following response to this comment:

(6) Use of OSHA F. R. proposal background material :

One comment has stated that it appears the Commission relied almost exclusively on OSHA's proposed amendment to the Standard for Occupational Exposure to Asbestos for background data on asbestos - related diseases and threshold limit - and has requested that the Commission correct the . . . scientific inaccuracies in the information taken from the OSHA proposal . . ."

The Commission acknowledged, in the July 29 Federal Register Proposal, that much of the asbestos - related disease background data were based on the OSHA October 9, 1975 F. R. proposal to amend the standard for occupational exposure to asbestos. Most of our knowledge about the hazards associated with exposure to asbestos is based upon occupational exposure data and it seemed appropriate

to cite this body of scientific literature which had already been subject to public scrutiny. The Commission conferred with OSHA during preparation of its proposal and deleted references to studies which OSHA termed to be of "questionable scientific validity,".

The Commission also based its proposal on direct and indirect evidence of asbestos inhalation in non-occupationally exposed individuals, including reports from autopsy findings of asbestos fibers in lung tissue and from epidemiological studies.

As pointed out in the CPSC F. R. proposal of July 29th, there had been only one report of consumer exposure to asbestos in the scientific literature prior to the proposal. Based on the data from that study, a Commission assessment was made of the potential increased risk of respiratory cancer associated with use of consumer patching compounds containing asbestos fibers.

DRAFT

J-M

(11) Statement about similarity of fibrous glass to chrysotile

Although we are not aware of the ^{source}~~science~~ of this statement we suggest the following response:

(11) Statement that "fibrous glass and the synthetic fibers are similar in shape and size to chrysotile, for example" is inaccurate.

The Commission agrees with the comment that glass fibers are not similar in size and shape to chrysotile - since, unlike the rod-like glass fibers, chrysotile tends to be curved, or curly fibers or fiber bundles, comprised of extremely small-diametered fibrils. However, glass fibers ^{are similar - at least in shape - to some} of the amphibole asbestos minerals. The diameter of most fibrous glass is reportedly greater than 3-5 microns and considered too large to be respirable. However, glass fibers are not of uniform dimensions and a small percentage may be of respirable size. Studies are now underway which will assess the pathologic effects of inhaled fibers, including fibrous glass.

DRAFT

DRAFT

Public Citizen

Comment that CPSC should use the OSHA's proposa^{ed} definition of "asbestos" (F. R. 40, No. 197, Oct. 9, 1975)

Response: The definition proposa^{ed} by OSHA in 1975 has not been finalized and may be subject to change. The proposed definition reflects OSHA's concern for the health aspects based on experimental findings associated with fiber morphology rather than chemical composition. Thus, the aspect ratio proposed in the OSHA definition sets parameters for respirable fibers as well as those which can be counted using current counting methodology and use of phase-contrast microscopy.

The Commission has reviewed much, if not most, of the available data on the characteristics of asbestiform mineral fibers and their non-asbestos counterparts. From these data, it would appear that ^{use of} the proposed OSHA definition could also include nonfibrous cleavage fragments and other particulate substances, as well as other ~~nonasbestos~~ mineral fibers within the proposed dimension range that are not asbestos fibers.

The recent workshop on asbestos definitional and identification problems clearly indicated the lack of agreement among health scientists, mineralogists, industry and regulatory agencies as to what constitutes an "asbestos fiber."

While the Commission is interested in arriving at an unambiguous uniform definition of asbestos we feel there is not yet enough evidence to base a definition of "asbestos" on fiber morphology.

Therefore, the Commission believes the proposed definition should remain "as is" for the present time. As circumstances warrant, the definition could be amended at a later date.

DP

cc-10-77-19

Forshaw

Comment: Feels there is not a hazard associated with asbestos emberizing materials suggests CPSC should investigate vinyl asbestos floor tile.

The Commentor states that the asbestos fibers used in artificial embers are relatively large, stringy pieces of asbestos and if some of the asbestos fibers did become airborne, they would automatically be pulled up the fireplace flue . . .

While it is true that the large asbestos fiber bundles pose little risk of inhalation, the fiber bundles release individual fibers which in turn, can break ~~longi-~~ longitudinally into microscopic fibrils. Fibers could become airborne under normal "use," installation, and handling conditions, as well as from room drafts. Once the fibers become airborne, they can remain suspended over long periods of time, eventually settling out on items of furniture, draperies, etc., only to become airborne and available for respiration with use of these items. As long as the free-form asbestos emberizing material remains loose on the fireplace floor, there is a possibility that it could become airborne and ^{thus} ~~they~~ respired.

BON - 01932

HEW

Comment that the use of fiberglass as an emberizing material may itself represent a health hazard.

The Commission has been advised by one of the leading fiberglass manufacturers that it is not aware of the use of fiberglass for emberizing material and, in fact, indicates that glass fiber properties would make it unsuitable for this purpose.

Another material which has been brought to the Commission's attention as a substitute emberizing material is a ceramic fiber.

The Commission has reviewed the fibrous glass/^{data}referenced by the Commentor and will continue to monitor ongoing studies which are, or have been proposed, to evaluate the inhalation hazard potential of glass, ceramic, and other man-made mineral fibers. The Commission is also evaluating its needs for a small fiber inhalation study which would, among other fibers, assess other asbestos substitutes, including the fibrous clay minerals.

DRAFT

cc-10-17-22

Vanderbilt

The Comments are a critique of Public Citizens' letter concerning the OSHA definition of "asbestos"

Response:

(1) Whether the proposed OSHA definition is "scientifically imprecise" remains to be resolved. However, after a review of the data on mineral fiber characteristics, it would not be considered a precise "minerological" definition.

(2) The NBS report of an analysis of 80 industrial talcs indicated that, using the present OSHA official regulatory method for asbestos fiber analysis, only a fiber (as defined by the current regulation) count was possible. It was not possible, by the current methodology, to state whether the "particles" were asbestos fibers.

This points out one of the problems ^{of} employing fiber morphology in the definition of asbestos fiber.

DRAFT

BON-01934

A.

Re: cc-10-77-17 - Union Carbide

Testimony from Dr. Harrison B. Rhodes of Union Carbide Corporation presented to the Commission 8/15/77, raised certain questions.

1. On page 6 Dr. Rhodes questioned a 6/13/77 memorandum to Don Clay from Dr. Steven Bayard on the risk assessment from the use of asbestos containing wall taping compounds. Specifically he questioned whether there is any basis for the assumption of the effect of dose being cumulative. I believe this assumption of cumulative dose response to be valid in the case of asbestos exposure since, unlike most chemicals which the body metabolize, asbestos fibers appear to remain in the body and accumulate. (ref. Thompson, J.G., Ann. of N.Y. Acad. Sci. 132: 196 - 214. 1965)

2. Also on page 6 of his testimony, Dr. Rhodes stated, that the (Enterline) model used by the Commission was "heavily biased toward predicting a high risk." The opposite is true. It is heavily biased toward predicting a low risk at consumer exposure levels. For example, the projected risk based on exposure for 1 year with the Enterline model is a lifetime excess of 10 respiratory cancer deaths per million. With a single hit (or exponential) model the projected excess rate is over 2,200/million. Based on 5 years exposure the Enterline and single hit models project 990 and 11,500 lifetime excess respiratory cancer deaths per million. While these figures probably represent the upper and lower range of risk, even this lowest estimate of 10/million is considered too high.

Union Carbide, Inc. has also presented a study it conducted of asbestos dust fiber levels to which a consumer might be exposed during wall taping operations. This study showed levels which were of the order of one-fiftieth to hundredths of the exposure levels reported by Rohl et al (1975) and used by the Commission in its risk assessment. Based on their highest time weighted average of 0.3f/cc, the Enterline model predicts less than 1 death per million for the projected five years exposure, while the single hit model predicts 226 lifetime excess cancer respiratory deaths per million exposed.

A disturbing feature of the study presented by Union-Carbide was the above mentioned 50-200 fold difference in the exposure levels. One reason for this large difference appears to be the amount of asbestos originally in the joint compounds in each study. While Rohl has published a range of 5-12% asbestos (dry weight) for his study, the study submitted by Union-Carbide does not report the asbestos content of the joint compound used. However, the author of the report, Dr. H.B. Rhodes, did state in testimony before the Commission on 8/15/77 (page 5 of handout) that the asbestos content for part of the compound used in the study was 2.6%. This difference in original content explains at least part of the difference in observed counts. Another possible explanation is

A - Page 2

given by Dr. Rhodes in a previously published article (Drywall, 1975) in which he compared the results of Rohl vs. a study by "a major supplier of asbestos and other products to tape joint compound manufacturers". Dr. Rhodes states, "In contrast to the New York City (Rohl) results, the fiber levels found were low and well within (OSHA) regulations. A possible reason for the difference can be found in the application and sanding conditions, i.e. had tools applied and heavily sanded in New York City compared with Ames tools and light sanding in Florida."

BON - 01936

B.

Wilson - Georgia Pacific

A comment was received from Mr. Glen E. Wilson, Vice President of Georgia-Pacific Corporation discussing a pre-mix compound which his company manufacturers, which "results in a minimum exposure which, based on (CPSC) risk assessment analysis, presents an insignificant health hazard." The Commission did not analyze each individual joint compound, but did base exposure on, among other procedures, the sanding and clean-up operations. These operations should provide similar exposure regardless of whether the compound was initially dry or pre-mixed. Thus, the risk assessment values would be similar.

The question of a four-day, eight-hour exposure being too high an estimate was also raised. The Commission concedes this "to be a high, yet reasonably foreseeable, exposure" (FR Vol. 42, No. 146 pg. 38787. 7/29/77.)

C.

cc 10-77-2

A comment was received from C.B. Thomas, President, Thomas Paint Manufacturing Company discussing the relative hazards of an asbestos containing patching compound vs. cigarettes. While the Commission will not disagree that cigarettes may be a comparatively greater hazard, cigarettes are not a "consumer product" within the framework of the Commission's jurisdiction.

BON - 01938

Johns-Manville

D. cc 10-77-14 + 7/13/77 J-M Letter
+ 6/14/77 J-M Letter

A letter was received from Richard P. Carter, Manager, Government Affairs of the Johns-Manville Corporation mentioning two previous letters to the Commission from other Johns-Manville employees, Dr. Gerald R. Chase, biostatistician 7/13/77, and Dr. Paul Kotin, Senior Vice President, 6/14/77. These comments are answered below:

1. Dr. Kotin discusses (page 6) the use of high exposure human data in projecting to low exposure human data and cites my (Steven Bayard) statement 6/13/77 that "this model is to be used for low exposure estimates. It does not fit the data for high or long term exposure data". This is the explanation for that statement. We have extrapolated from only one human data point, which while the lowest short term exposure data available, is still high in relation to projected consumer exposure levels. For extrapolation, I wanted to use the lowest short term human exposure data available. Longer term exposure data, while available, would complicate the analysis by introducing the competing risks of asbestosis and other chronic lung conditions. I felt little valuable information would be gained in including these data since they would not reflect consumer exposure.

In fact I believe that these competing risks indicate that two different models should be used—one for low exposure and one for high exposure. The Enterline model projects what I believe to be a minimum response for low exposure data, but a response which rises quite rapidly at high exposures. Thus, use of the Enterline model at high exposures would give estimates which are just too high. On the other hand, a single hit or linear model did fit the long term high exposure data better than the Enterline model. But this single hit model estimated 1100 excess deaths per million at the same low exposure consumer levels that the Enterline model estimated 10 per million. Thus, this range of between 10 and 1100 excess deaths per million based on four exposures in a lifetime (between the ages of 20 and 35) represented the range which might be expected.

It should be pointed out here that these figures are only estimates, as is the exposure level of 30 f/cc at the New Jersey factory, from which the data came. However, the fact is that this is human, not animal, data and that errors of the magnitude of five, ten, or even one hundred fold would still, in our opinion, render these data more meaningful and useful for extrapolating purposes, than the best animal studies.

2. Dr. Chase discusses an assumption in CPSC's asbestos risk assessment memorandum (6/3/77) which states that intermittent exposure over several years has the same effect as if the same exposure had taken place in a single year. I believe this assumption of cumulative

and might thus hide the long term respiratory cancer effects to which consumers would

dose response to be valid in the case of asbestos exposure since, unlike most chemicals, which the body metabolizes, asbestos fibers appear to remain in the body and accumulate. (ref. Thompson, J.G., Ann. of N.Y. Acad. Sci. 132:196-214. 1965)

3. Mr. Carter questions (page 5 8/19/77) "whether there is any foundation for the assumption of consumer use of patching compounds for six-hour a day, four times a year." He suggested a "more accurate assumption would likely be fewer hours of exposure once or twice in a lifetime." Since the estimate of risk of 10 per million to 1100 per million excess deaths was based on four uses in a lifetime, the Commission feels that there would be little argument that a substantial number of people are actually exposed to that degree.

CONSUMER PRODUCT SAFETY COMMISSION
ROUTE SLIP

TO ~~A. Marsel~~
Francine

- Take necessary action ☐
Approval or signature ☐
Comment ☐
Prepare reply ☐
Discuss with me ☐
For your information ☐
See remarks below ☐

FROM J. Thompson

DATE Oct. 21

REMARKS

Dr. Desmond reviewed
my responses and has added
the attached (pencilled) comments.

Francine
these were written
subsequently - so if you can
use fine

Jane

Allied:

Comments The raw material used to replace asbestos has not been approved and since this material is of a fibrous nature, this product might be banned.

In assessing asbestos substitutes, data available to the Commission indicates that a number of substances may be used, many of which are not fibrous. For the fibrous clay minerals which may be used as asbestos substitutes, the Commission is aware that there is a lack of conclusive data on the hazard potential associated with these minerals. However, the Commission has proposed a study to evaluate the risk of inhalation exposure to such small mineral fibers.

*C.P.E. data not from the Institute for
pre-market testing of asbestos.*

DRAFT

Bondex

Statement that it appears that Commission data is based on occupational statistics, it probably would be difficult to document the statement that "for many people the major exposure to inhalable asbestos is in the home" particularly in view of exposure to asbestos which exist in the environment today.

While it is true that much of the Commission data on asbestos-related diseases are based on occupational statistics, a risk assessment was made of consumer exposure to respirable asbestos in patching compounds during mixing, sanding and cleanup operations which estimated the increased risk of lung cancer from such exposure in the home. A report of asbestos in consumer spackling / patching compounds indicated that a significant level of respirable free-form asbestos fibers were detected in rooms adjacent to that where the actual patching and sanding operations had occurred/as well as the individual performing the patching job.

In many areas of the Country (nonurban), there appears to be a relatively low background level of asbestos.* Therefore, exposure in the home to asbestos fibers released from consumer products might represent the major exposure.

*Rohl, A., Langer, A. and Selikoff, I.: "Environmental Asbestos Pollution Related to Use of Quarried Serpentine Rock". *Science*, v.196, p.1319-1322, 17 June 1977.



Bondex: (over):

Dr. Paul Kotin, Johns-Manville, stated (in a presentation before the Commission, June 9, 1977) that young children are particularly vulnerable to exposure to carcinogens* and clearly their major exposure to inhalable asbestos would be in the home. The Commission therefore feels it is essential to minimize, to every extent possible, exposure to respirable asbestos in consumer products.

DRAFT

*F. R. 42, No. 156, P. 38786, 29 July 1977.

Johns-Manville

(6) Use of OSHA F. R. proposal background material: Criticism by J-M.

In a June 3, 1977 Memo - Hehir to Clay - ES presented a literature review and analysis and a risk assessment, as well as the OSHA F. R. background data.

Parts of all 3 documents eventually were utilized in the F. R. proposal.

As for the use of the OSHA F. R. proposal material, Dave Melnick, OGC, indicated that since the OSHA F. R. data had already been subject to public scrutiny, it would be more defensible.

However, we offer the following response to this comment:

(6) Use of OSHA F. R. proposal background material:

One comment has stated that it appears the Commission relied almost exclusively on OSHA's proposed amendment to the Standard for Occupational Exposure to Asbestos for background data on asbestos - related diseases and threshold limit - and has requested that the Commission correct the . . . scientific inaccuracies

in the information taken from the OSHA proposal . . . Since OSHA had published the proposed amendment in the Federal Register, for public comment, and the Commission had received many comments on the proposal, the Commission acknowledged, in the July 29 Federal Register Proposal, that much of the asbestos - related disease background data were based on the OSHA October 9, 1975 F. R. proposal to amend the standard for occupational exposure to asbestos. Most of our knowledge about the hazards associated with exposure to asbestos is based upon occupational exposure data and it seemed appropriate

J-M (Johns-Manville)

(4) The commentor expresses concern that "... too little attention may have been given to the issue of potential hazards of the substitute materials." That will replace asbestos.

The Commission shares the Commentor's concern expressed in the comment about the potential hazards of substitute materials. There is, presently however, insufficient data on which to base an assessment of the potential hazards associated with asbestos substitutes. There are studies now, or are proposed to be undertaken, which will assess the potential inhalation hazards associated with certain man-made mineral fibers, including ceramic fibers (reported to be an asbestos substitute for asbestos emberizing material). In addition, the Commission has under consideration an inhalation study of other small mineral fibers, including fibrous clay minerals used as substitutes in consumer patching compounds.

*CPS: does not have the authority to require
pre marketing testing of products*

C

BON - 01947

UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT
SAFETY COMMISSION
WASHINGTON, D.C. 20207

TO : Ms. Francine Shacter, OPM
THRU: Georg Maisel, Dir., ESHS

DATE: November 2, 1977

FROM : E. June Thompson, ESHS

SUBJECT: Asbestos F.R. Proposal

Comment on pp. 11 & 12, CONTAMINATION

Dr. Nicholson (Mt. Sinai) states that the EPA spray insulation regulation permitting 1% asbestos DOES NOT set a precedent for the Commission's proposed regulation:

commonly

Before the EPA regulation, asbestos was/present in a dry fibrous spray insulation material up to 15% by weight. The EPA regulation represents a practical ban on the use of asbestos in the DRY FIBROUS SPRAY material.

The 1% limitation of asbestos was added to accommodate a manufacturer of a cementitious fireproofing mixture consisting of vermiculite having a small contaminant of asbestos. In this use, the asbestos was locked into a solid matrix, presenting little risk to the public.

So the practical effect of the Spray Insulation regulation was to significantly reduce the dissemination of asbestos fibers through the use of dry fibrous spray material, since it would serve no purpose to add less than 1% by weight asbestos.

Dr. Nicholson indicated that asbestos is not present, AT ANY LEVEL, in the dry fibrous spray insulation material today since the materials used in these sprays are predominately ROCK WOOL and do not have any asbestos contamination.

Dr. Nicholson and the Director of the OSHA Laboratory where most of the analyses for asbestos are conducted, agree that we can define CONTAMINATION in statistical terms such that if NO MORE THAN 1 asbestos fiber/1000 particles in a sample examined are seen, THEN, with 95% confidence levels, the probability that no more than background level contamination level is present is _____.

Memorandum

TO : Beatrice Pitkin, OGC
Through: Georg S. Maisel, Director, ESHS

FROM : June Thompson and Steven Bayard, Ph.D., ESHS
June Thompson *Steven Bayard*

SUBJECT: Selection of an Interim Screening Level for Asbestos Contamination of Patching Compounds

DATE: November 7, 1977

The following rationale is presented for the interim 1 fiber/1000 allowable asbestos contamination level which was recommended as modification to Dr. Hehir's paragraph submitted to OPM on Friday, November 4.

1. We feel there is some unavoidable contamination, yet that this allowable contamination must be kept significantly below 1% by weight.

2. The laboratories which we have contacted indicate that the X-ray diffraction method used to gravimetrically measure asbestos cannot detect less than 1% by weight. Others (Stanley, H.D. and Norwood R.E., "The Detection and Identification of Asbestos and Asbestiform Minerals in Talc". Workshop on Asbestos. National Bureau of Standards, Washington, D.C. 7/77.) claim "The Step Scanning X-ray Diffraction technique allows quantitative detection and identification of tremolite and the asbestiform minerals down to .1% by weight". These same authors also claim "In the absence of chlorite (Step Scanning X-ray Diffraction) can detect and quantitatively determine chrysotile asbestos at the .5% level. Chlorite, however, is often associated with talc ore bodies (an ingredient of patching compounds). When present, chlorite will mask most of the main X-ray diffraction peaks of chrysotile". Thus, it appears that this technique is not sensitive enough for enforcement below 1% by weight.

3. The optical methods of identifying asbestos fibers more than 5 micrometers long are readily available and appear reliable enough (Rajhans, G.S. and Bragg, G.M., "A Statistical Analysis of Asbestos Fiber Counting in the Laboratory and Industrial Environment". American Industrial Hygiene Association Journal, page 909-915, 12/75). The limits of sensitivity appear to be about 1 fiber/1000 particles (personal communication).

Furthermore, with respect to optical procedures for identifying asbestos in patching compounds, our consultant, Dr. William J. Nicholson states (communication to June Thompson, received 11/7/77) that "the criteria of no more than one fiber longer than 5 micrometers/1000 particles in a dispersed sample would certainly limit the fiber content to less than .25% by weight".

Although we believe the above reasoning is satisfactory to set an interim level for allowable asbestos contamination of 1 fiber/1000 particles in patching compounds (it appears we can't detect below that level anyway) , we suggest that a study be undertaken to correlate the gravimetric procedure with the optical procedures for asbestos levels in patching compounds of 2-5% so that we might be able to extrapolate better to low levels. This might lead to an allowable level of either more or less than 1 fiber/1000 particles; that is, we would like a measure by weight, but it appears this cannot be done at less than 1% by weight for patching compounds. While optical procedures cannot quantify by weight directly, we feel that the homogeneity of particle size in patching compounds will allow us to correlate the optical and X-ray diffraction procedures. This will allow us to choose a level of contamination by optical procedures and estimate the contamination by weight with assurance that it is significantly below 1% by weight.

It should be emphasized that there is certainly no consensus of opinion among the experts in research institutions and government agencies as to what constitutes the most appropriate fiber identification methodology, given the present state-of-the-art of analytical techniques.

As techniques improve we may wish to either redefine the allowable contamination levels, the identification procedures or both.

In view of the above, OGC may wish to provide an additional comment period since this issue was not addressed in the proposal.

For enforcement purposes we will use routine screening by conventional optical methods selecting samples that have fiber counts greater than 1 fiber/1000 particles (greater than 5 microns in length) for further analysis.

This interim screening level is chosen as one which the Commission believes will allow for minor background contamination, which can be detected by commonly available procedures.

The selected samples will be submitted for more quantitative procedures, such as electron microscopy and x-ray diffraction.

The Commission action will be based upon qualitative and quantitative estimates of asbestos in the product.

"Where the aim of the investigation is identification of the type of asbestos, the fibers are usually sufficiently large and numerous that simple, rapid techniques such as optical microscopy (Hodgson, 1965), including dispersion staining, (Julian & McCrone, 1970) or X-Ray Diffraction (Rickards & Badami, 1971; Timbrell, 1970) can be used."*

*Champness, P.E., et al: "The Identification of Asbestos".
J. of Microscopy, Vol. 108, Pt. 3, p. 231-249, Dec. 1976

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UNITED STATES GOVERNMENT

Memorandum

U.S. CONSUMER PRODUCT
SAFETY COMMISSION
WASHINGTON, D.C. 20207

TO : Commission

DATE: November 10, 1977

FROM : Kathie Bass *KB*
Office of the Secretary

THRU: *S. Dunn*
Sadye E. Dunn
Deputy Secretary

SUBJECT: Respirable Free-Form Asbestos

Attached is an OGC-prepared vote sheet and memorandum, and a staff briefing package on Respirable Free-Form Asbestos. This matter is scheduled for briefing on November 17, 1977 and decision on December 1, 1977.

Attachments

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