MEMORANDUM

CONSUMER PRODUCT SAFETY COMMISSION

DATE: November 29, 1973

TO : Commissioners, Consumer Product Safety Commission

FROM: Robert M. Hehir, Bureau of Biomedical Science

THROUGH: Richard D. Early

SUBJECT: Asbestos in Consumer Products

Asbestos fiber is an extremely useful, if not indispensable material in our highly industrialized society. There is no adequate substitute for its specialized uses where resistance to destruction by heat and insulating properties are combined. It has great fiber strength and can be readily woven. It is compatible with portland cement (transite sheet and pipe), is combined with binders, plastics, gypsum, and/or other fibers and materials in wall board and acoustical ceiling tile. It can be used as reinforcement in plastics as in vinyl-asbestos floor tile. It is quite resistant to corrosion; although not completely immune to chemical attack, it is relatively non-reactive. There are several classes of hydrated silicate minerals - amorphous, or non-crystalline fractions, as well as the flat flakes or "platy" talcs and the well-defined fibrous asbestos. These minerals are not single pure compounds - talc contains traces to substantial percentages of fibrous material and the various deposits of asbestos contain some flaky and often a large proportion of amorphous material. Asbestos fiber is not a single entity, but any one or more of a family - chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolyte. These vary somewhat chemically and in crystal structure. Most of the asbestos fiber used in the United States is chrysotile. These also vary in degree of hazard; none are without hazard.

It is universally accepted among those qualified as experts in the field, that asbestos fiber is hazardous by inhalation. Industrial exposure in mining, milling, fabrication, and/or application of asbestos and asbestos-containing materials, has led to asbestosis (comparable to silicosis, black-lung disease and other pneumoconioses). This may develop in a relatively short time after extremely heavy exposure, or may take perhaps twenty years or more in a less heavy exposure. The OSHA Standard for worker protection is now 5 airborne fibers,5 microns or more in length, per cubic centimeter of air, and will soon be lowered to 2 airborne fibers, 5 microns or more in length, per cubic centimeter of air. This standard is almost universally accepted as adequate to protect against development of asbestosis.

It is well established that industrial exposure to asbestos fiber leads to greatly increased risk of lung cancer (bronchogenic carcinoma) as well as increased risk of gastrointestinal cancer. Pleural mesothelioma, a particularly malignant form of cancer of the lining of the space between lungs and chest wall, and peritoneal mesothelioma (of the lining of the spaces around the intestines and other abdominal organs) is not a common cancer in the general population, but develops with alarming frequency in industrially exposed asbestos workers. Cancer as a result of exposure to asbestos generally requires twenty to thirty years to appear. Although association of cancer with asbestos exposure was first recognized in the 1930's, control of industrial exposure is only now approaching reasonable levels, and we have tens of thousands of apparently normal workers with a history of asbestos inhalation exposure who will develop cancer in the next twenty to thirty years.

The OSHA Standard of 2 fibers over 5 microns per cubic centimeter is not universally considered as adequate to prevent asbestos-induced cancer. There is disagreement among experts as to what, if any, standard for airborne asbestos would be adequate. There are some who believe that the standard will result in an acceptably low incidence of cancer in industrial workers, and others who argue that the only acceptable standard is zero. It will require many years of epidemiological study to determine whether control of airborne asbestos will control incidence of asbestos-related cancer, and what, if any, standard will be adequate. This leads to recommendations that no means be spared to reduce exposure to the absolute minimum.

The primary hazard from asbestos results from breathing airborne fibers. While a fraction of inhaled fibers are cleared by cilia and swept up in a mucus blanket to be secondarily swallowed, there is no absolute proof that gastrointestinal cancers or peritoneal mesothelioma result therefrom. These could as easily be produced by fibers cleared from the lungs by scavenger white blood cells or macrophages, and transported through the lymph to the site of cancer production. However, studies of these cancers does not reveal a high concentration of asbestos fiber.

There have been studies indicating that particulate matter, including asbestiform fibers, can enter the body through the walls of the gastro-intestinal tract, but studies have not established that pathology results therefrom. Many cancer research workers, and consumer advocates, refuse to accept negative animal data as conclusive, arguing that the studies have not yet found the right conditions for demonstrating the hazard.

Asbestos fiber is ubiquitous, appearing naturally in air and water from erosion of hydrated crystalline silicate minerals such as serpentine (rock). Asbestos also enters the environment through man's activities - general earth-disturbing construction activities; mining, milling and fabrication of asbestos and asbestos-containing products; and the use and disposal of these products. Use and disposal of these industrial and consumer products will inevitably release asbestos into the environment - how much will depend on how firmly the fiber is "locked-in" by other constituents of the product, such as cements, binders, resins, plastics, etc. Certain products, such as asphaltic roofing containing asbestos fiber, and vinyl-asbestos floor tile, do not constitute a significant source of environmental asbestos.

Control of hazards of exposure of man to asbestos is the responsibility of a number of Federal agencies, and has engaged the attention of consumer advocates, including the Center for Science in the Public Interest (CSPI). Dr. Barry Castleman, of CPSI, prepared a 65-page booklet, Asbestos and You. CSPI and staff members Fritsch and Blakeman petitioned the Federal Trade Commission (FTC) "to take such steps as are within the scope of the Commission's authority to protect the public from the hazards of asbestos." The FTC has sought cooperation from the Consumer Product Safety Commission, and a number of contacts have already been effected.

Tab D is an internal FTC memorandum, Olderman to Commissioners, FTC. The following comments apply to the recommendations on page 24 of this memo.

1. Investigate all products under FTC jurisdiction, except foods, drugs, and cosmetics .....

   Comment on 1: This relegates to FDA the primary control of exposure to asbestos by injection (parenteral drugs) and oral intake (drugs and foods, including potable water). All other asbestos-containing consumer products would be left to be studied by FTC.

2. Meet with CPSC (after completion of above study) to determine which agency should promulgate labeling regulations.

   Comment: CPSC should regulate consumer products to prevent unreasonable risks of injury, including labeling of the products as appropriate. Occupational Safety and Health Administration (Department of Labor), (OSHA), with scientific support from National Institute for Occupational Safety and Health (Department of Health, Education and Welfare) (NIOSH), has the

responsibility for protection of workers (against hazards of occupational exposure to asbestos) in their places of employment as encountered in mining, milling, manufacturing, and using asbestos and asbestos-containing products. The Environmental Protection Agency has responsibility for protection of the environment (and hence the general public) from the contamination of the environment (air and bodies of water) by hazardous materials. EPA, therefore, establishes air emission standards relative to escape of asbestos fibers into air downwind from industrial establishments handling asbestos and asbestos-containing products. EPA can, if it so determines to be necessary, regulate the release of asbestos fiber into bodies of water as a result of industrial operations, and is deeply involved in a study at the present time.

3. "Urge FDA ..."

   Comment: This is not a CPSC issue.

4. "Inform consumers, ... of the dangers presented by use of asbestos-containing products which release particles into the air through use, abuse, or deterioration."

   Comment: Fine. Although this is certainly one of CPSC's most likely means of consumer protection, we certainly should cooperate with FTC to secure coordinated and non-conflicting accomplishment in this area.

Tab A is a letter of 10/25/73, Olderman (FTC), to Russ Smith (CPSC, OSCA), posing three specific questions:

1. What is extent of CPSC's jurisdiction?

   Comment: CPSC has primary jurisdiction over all asbestos-containing products available to the final consumer, including construction materials which can be purchased at building-supply stores. Since most of these are used primarily in the construction and repair trades, OSHA also has prime responsibility over the industrial and commercial use of these products. The same types of data required by OSHA will be useful to CPSC, but it is quite possible that we will use different risk-benefit ratios in our determination of what constitutes unreasonable risk.

2. What priority would CPSC give asbestos?

   Comment: Moderate to high, but not top. We should investigate each specific case of unnecessary high exposure to asbestos fiber - as we did while in FDA relative to background for banning use of asbestos in general-use garments; and as we did when we investigated, and could not find, asbestos fiber in papier maché. (Follow-up to banning of purchases by New York schools.)

3. Would CPSC be receptive to joint FTC-CPSC study?

   Comment: As described, the project seems unlikely to produce data critical to CPSC decisions, although the data collected would be useful. A great deal of the critical data, relating release of asbestos to specific operations in using asbestos-containing consumer products subject to our jurisdiction, may already be available within OSHA-NIOSH. We recommend formation of a small task force, with at least one staff member, or consultant, conversant with particle size measurement to work with OSHA-NIOSH and other sources and interested parties seeking data from actual quantitative studies. The CPSC Task Force would also include representation from Bureau of Compliance, Bureau of Engineering Science, and the Office of Standards Coordination and Appraisal. The BBS representative would keep in touch with the activities of the Health, Education and Welfare Committee to Coordinate Toxicological Research and Related Matters, and NIOSH, EPA, National Cancer Institute, etc., with respect to biological and epidemiological studies of exposure to asbestos. It is unlikely that we should bear the great burden of cost of these studies, where other agencies have the primary control.