



EATON-DIKEMAN

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December 21, 1973

Hearing Clerk
Food & Drug Administration
Room 6-86
5600 Fishers Lane
Rockville, MD 20852

Subject: Asbestos Particles in Foods and Drugs

Reference: (1) Federal Register Sept. 28, 1973
Vol. 38, No. 188 P27076

(2) Test Reports #78992 Dec. 14, 1972
#80060 Jan 3, 1973
From U. S. Testing Co., Hoboken, NJ
To Eaton-Dikeman, Mt. Holly Springs, PA.
(Attached herewith)

Dear Sir:

MEMORANDUM

Introduction:

These comments are offered pursuant to the first paragraph, Column 1, P. 27081 of Reference (1) indicating that interested persons may file comments regarding the Commission's proposal. The purpose of this memorandum is to report data to show the effect of various non-asbestos-containing fibrous filter papers upon the removal of asbestos fibers suspended in aqueous liquids. It is respectfully submitted that these comments should be pertinent to the current considerations being given to revisions in section #133.8 relating to production and control procedures, whereby it is noted that a "non-asbestos-containing membrane filter" should be used after an asbestos filter. The use of a membrane filter as such may be undesirable from two standpoints. First, the membrane filter may have an effect upon product properties in some situations, as suggested in the second paragraph, Col. 2, P. 27078, of Reference (1). Second, in such instances wherein the membrane filter can be used, additional manufacturing expense can be entailed, which would ultimately result in higher selling prices to the consuming public.

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2--FDA, Rockville, MD.

December 21, 1973

Background:

Eaton-Dikeman, A Division of Knowlton Brothers, Inc., Watertown, N.Y., is a paper manufacturer that for many years has specialized in high purity absorbent, blotting, and filter papers for scientific and industrial applications. Its products are produced from cellulose fibers, originating either from cotton linters or woodpulp. In conjunction with the distribution of these cellulose papers into various market areas, particularly pharmaceutical, beverages, and food manufacturing, Eaton-Dikeman has been especially interested in the questions arising as to the use of asbestos filters for liquid filtration. Eaton-Dikeman does not utilize asbestos fibers in any of its products, but a knowledge of asbestos fibers is present. In the past, attempts were made to make paper products on the Fourdrinier machine at Eaton-Dikeman wherein a blend of asbestos and cellulose fibers would be utilized, but this operation did not prove economically feasible.

Eaton-Dikeman does acknowledge that the unique physical characteristics of asbestos fibers impart unusual and valuable filtration properties in products made from blends of asbestos and cellulose fibers. In such fibrous assemblages, often called "sheets" or "pads", removal of contaminants from a wide variety of influents can be achieved in circumstances wherein other filter media, such as those made from fibers of cellulose or glass, would not be as effective. This behavior is attributed to the combination of very high specific surface of the asbestos fibers combined with their propensity to develop a positive surface charge when an aqueous liquid is flowed past the fibers.

Asbestos-cellulose "pads" are available from both American and foreign manufacturers in a wide range of ratios of asbestos-to-cellulose by weight of fibers, not numbers of fibers. By way of example, a "pad" containing 5% asbestos by weight is typically utilized for "rough" filtrations, whereas one containing 25% asbestos is typically utilized for "clarifying" filtrations.

It should be noted that an end-user does have the choice of several systems other than the mixtures of asbestos and cellulose. Membranes are suitable in many instances, especially for filtration requirements that are extremely stringent, in the "sterilizing" or "clarifying" range. For less stringent requirements, it is occasionally possible to select a composite product consisting of two or three layers of all-cellulose filter paper that will accomplish the desired degree of contaminate removal.



3--FDA, Rockville, MD

December 21, 1973

Presence of Asbestos Fibers in Liquids

It has been recognized for many years that the use of an all-cellulose filter paper down-stream from the asbestos-cellulose product is effective for removing asbestos fibers from the liquid that has passed through the asbestos-cellulose product. Several domestic manufacturers have made available to end-users such all-cellulose filter papers. It has been considered, qualitatively speaking, that such papers have the capability of removing asbestos fibers.

There are, however, a wide variety of all-cellulose filter papers, demonstrating differing combinations of permeability and retention of particles. The exact quantitative capability of such papers for removing fine asbestos fibers from liquids, to the best of our knowledge, has not been determined, and accordingly a series of preliminary evaluations were made at the Eaton-Dikeman laboratory. These results did suggest that differing grades of all-cellulose papers demonstrated different degrees of asbestos fiber removal.

The services of the U. S. Testing Laboratory were enlisted to conduct further tests, and the results are shown in Reference 1. It should be noted that a differentiation was made between fibers over 5 micrometers and under 5, and that counts were made with a light microscope.

Application of Data

The data developed from the above tests do show that different grades of filter paper have different retention characteristics. It is not the purpose of this study to state which should be used, and which should not be used. Each filtration situation warrants careful study in terms of the asbestos-cellulose product selected for filtration, the contamination level considered acceptable in the final product, and the over all economies of the process involved.

Respectfully submitted,

EATON-DIKEMAN

Wells Shoemaker
Vice President, Sales

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