

FILE NAME: Owens-Corning (OC)

DATE: 1955 Dec 10

DOC#: OC165

DOCUMENT DESCRIPTION: Report - Experimental Study of the Effects of Glass Wool on Animal lungs with Cover Letter

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December 10, 1955

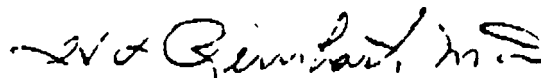
Charles Bishop, M.D.  
17 E. Locust Street  
Newark, Ohio

Dear Dr. Bishop:

I have this day completed the studies of the two articles by Dr. Schepers and on the effects of glass wool on animal lungs. In the course of this study I have reviewed all of the material which you presented to me and in addition have consulted other work in the literature in the Medical Library, which has facilitated my specific interpretation of the work of Dr. Schepers.

I hope that my review and interpretation of the inferences of these articles is clear. I am in entire agreement that "dangerous inferences would be drawn by an unqualified reader" or even a non-critical physician. I think it is most unfortunate that they have not consulted with Mr. Aikman and those in authority before the articles were published. If there is any further comment you desire, I would be glad to express my opinion in regard to them. However, I must inform you that I will be out of the country on a study project for the months of January and February, 1956.

Very sincerely,

  
H. L. Reinhart, M.D.  
Box 3006  
University Station

HLR/rm

encls.

## Review of

### An Experimental Study of the Effects of Glass Wool on Animal Lungs

by G. W. H. Schepers, M.D., D.Sc., and Anthony B. Dilahant;  
Saranac Lake, N.Y.

A.M.A. Archives of Industrial Health; Sept., 1955, vol. 12,  
#3, pages 276-279

In this article the authors are reporting the technic, material, preparation and size of particles of glass wool and methods of introduction into the lungs of guinea pigs and rats. These studies were conducted from 1939 to 1947 under the direction of L.D. Gardner, M.D. whose "demise prevented the publication of reports on the results obtained." The data reported therefore is obtained entirely from the studies of this period.

Most of the data represents the numbers and kinds of animals used, survival period, and whether each animal was killed or died, with a report of the gross pulmonary lesion. There is also a comparison of the mortality ratio between guinea pig deaths and rats under "identical environmental stress." The pathological reaction in the lungs of the rats were considered insignificant.

Under comments the authors believe that the effect of the glass wool is "not wholly inert" - - - "the fibers are not fibrogenic" - - - "they do appear to be trapped in the lungs" - - - "the prevalence of pulmonary infection (abscesses) in the rat" - - - "and the frequency of focal atelectasis (in guinea pigs) are inferred as being the result of dust exposure!" If transmitted to humans the inference is that at least there would be a lowering of resistance to infection.

A note of caution is expressed against applying the information obtained from these studies to the "glass wool or glass fibers currently available to commerce" particularly because of the lighter caliber of glass wool in use at the present time. Additional studies are allegedly being made on one such product.

PERSONAL CONCLUSION - It is unfortunate that this article is separated from the next article, which is much more specific about the disease producing potential of glass wool. Many more people will read the succeeding article, in which there are very few if any notes of caution, than this article which is more technical.

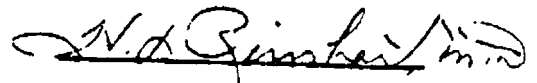
The author concludes that "short fiber, medium caliber glass wool produces - - - an interstitial pneumonitis but dominantly an endo-bronchiolar and peribronchiolar lesion" which is broncho-pneumonia and a bronchial epithelial hyperplasia, which, while he does not definitely state it, permits an inference of carcinogenic properties!

PERSONAL CONCLUSIONS: These are my interpretations of what the author has concluded from his experiments. There is insufficient detail or scientific evidence produced to permit a critical evaluation of his work. I am not impressed by the character of his illustrations or figures which are for the most part poorly done.

If the conclusions he has reached are justified, the inhalation of glass wool fiber of this type constitutes a serious industrial hazard. There are implications of "bronchiectasis" which in man is a serious condition with a long drawn-out clinical course, usually only relieved by removing all or part of a lung and tumor producing ("oncogenesis") potentialities which at once raises the question of the possibility of this material producing carcinoma of the lung.

I therefore feel that the note of caution that was expressed in the first article has been thrown to the winds in this article, and very serious implications are suggested, which if substantiated by further work or the work of others, would be more serious than the Industrial Hazard of Fibrosis or Asbestosis.

Personally I am not impressed. The evidence of serious disease of these types in workers and those exposed to this material (humans) has not been produced - and as far as I can ascertain is not in the literature. Furthermore it is a big jump from animals exposed to these artificial conditions and humans - and finally, the experiments should be carried out by others, with confirmation before I would accept these results.



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