DIATOMACEOUS EARTH AS A POTENTIAL HEALTH HAZARD

This is our latest information concerning Johns-Manville's Diatomaceous Earth products as potential health hazards and supersedes all previous bulletins and data on this subject. This information should be used as a basis for giving verbal answers to questions raised by customers or others who may have a legitimate interest.

At present we do not know all details concerning the exact nature or extent of the occupational disease hazard which might be created by inhalation of excessive concentrations of diatomaceous earth dust. The following facts are known and can be given verbally to legitimate inquiries. However, if written confirmation is requested, please refer the matter to Division Headquarters.

1. For many years Johns-Manville has supported extensive and continuing research by the Saranac Laboratory, the Industrial Hygiene Foundation, and other institutions for the purpose of determining the nature, extent, and prevention of occupational disease hazards.

2. At the request of Johns-Manville and others in the diatomaceous earth industry, the U. S. Public Health Service and certain State organizations undertook a survey to determine the effects of inhalation of various types of diatomite powders.

3. The results of this survey have been published in the Public Health Service Publication No. 601, "Pneumoconiosis in Diatomite Mining and Processing". These booklets are not distributed from this office but can be obtained from Superintendent of Documents, Washington 25, D.C. Briefly their findings are: -

   a. Diatomite powders containing cristobalite, such as our high-temperature calcined and flux calcined materials (Standard Super-Cel and Hyflo Super-Cel) can cause pulmonary damage when inhaled.

   b. Natural or uncalcined powders such as Filter-Cel, Celite FC, Celite 379, Snow Floss are amorphous silicas containing no cristobalite and thus cause little if any trouble when inhaled.

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c. Any dust disease caused by diatomite is a separate entity to be differentiated from quartz silicosis.

d. There is no significant difference in the potential health hazards associated with marine or fresh water diatomite.

e. Fewer than 9% of all employees in the total diatomite industry surveyed had X-ray evidence of pulmonary reaction to inhaled diatomaceous earth.

f. In working areas where diatomite is used, the dust concentration should not exceed 20 million particles per cubic foot for noncristobalite-bearing products, and 5 million particles per cubic foot for cristobalite-bearing products.

A considerable amount of time, energy and money has been spent at Lompoc to eliminate atmospheric dusts. A vigorous housekeeping program and constant industrial hygiene surveys correlated with results of physical examinations have enabled us to prevent any new cases of industrial pulmonary disease among our employees.

The entire medical and research program is under the direction of the Johns-Manville Medical Director.

At this time, we know enough to warrant our advising customers:

a. to minimize so far as possible the dust created by use of the material;

b. if the nature of their operations will not permit the reduction of the dust concentration to safe levels, to require the use of personal protective devices.

Our further experience and experimental studies may cause some of the foregoing facts to become out of date, in whole or in part, at some time in the future. If a customer should request some written statement from the Company or more up to date information the request should be referred to Division Headquarters along with a statement as to whether or not the information contained in this article has been provided.

Inquiries have been received from the field as to the type of respiratory protective equipment to recommend to our customers upon their request.

Many respirators have been approved by the U. S. Bureau of Mines for protection against pneumonoconiosis-producing dusts. Following are some

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of the manufacturers of these protective devices.

Mine Safety Appliances Company
Pittsburgh, Pennsylvania

American Optical Company
155 East 44th Street
New York, New York

Willson Products, Inc.
Reading, Pennsylvania

Reference to these concerns may be included in recommendations to our customers. However, all inquiries should be forwarded to Division Headquarters for study before any written reply is made to the customers.

Because of legal requirements in some States a "caution" label was placed on all bags containing our diatomaceous earth products. This label followed the format recommended by Manufacturing Chemists Association for products which might be harmful to users or handlers.

As a result of our research and the recent U. S. Public Health Service report, the caution label has been removed from all bags containing only natural or non-cristobalite powders.

The following caution label will appear only on those bags containing powderswhich have a certain percentage of cristobalite.

CAUTION

This Celite product consists of amorphous diatomaceous silica plus varying percentages of inverted microcrystalline silica.

Inhalation of diatomaceous earth dust may be harmful.

Avoid breathing this dust.

Dust should be kept to a minimum by proper controls. Respirators or dust masks approved by the U. S. Bureau of Mines for silica dust are recommended.

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In a discussion of this subject our Plant Physician, Dr. Walter M. Anderson, was asked for his opinion about the actual physical condition of the men at our Lompoc Plant. Extracts from Dr. Anderson's report follow:

> "Diatomaceous earth pneumoconiosis is a form of pneumoconiosis that can be divided into two forms, the so-called linear reaction in the lung and the conglomerate form of the disease. This classification is based upon chest X-ray findings. The linear form of the disease is manifested in the X-ray by slight or moderate increased haziness in the entire lung field. After years of experimental work at the Saranac Laboratories and from clinical observation, this form of the disease never causes disability or death. In a small percentage of cases, the linear form has progressed to a conglomerate form, which may cause marked disability and, in certain instances, may end fatally. However, I personally have had under observation some cases which have had the conglomerate form of the disease for a number of years and objectively have complained only of shortness of breath. Otherwise, the individuals are apparently in good health."
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> "I wish to emphasize at this point that the X-ray only casts a shadow. There is no way of determining disability of the lungs by looking at a chest X-ray. Therefore, a statistical study of X-ray changes is not a true indication of pulmonary disability. It is only by clinical study and rather complicated pulmonary function tests that we are able to determine those who have actual pulmonary disability."
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> "The solution of the problem in connection with any industrial disease of the lung caused by the inhalation of a dust is dust control. Every effort has been made at the Johns-Manville Plant during the past five years to accomplish this. Engineering studies and research are constantly in progress toward the ultimate solution of this problem. Having had the opportunity to personally observe this progress over the past ten years, I feel that great progress has been made and, given time and engineering ingenuity, we hope to ultimately achieve this end."

So far as the work at Lompoc is concerned, it can be divided into four parts:

1. Elimination of the dust hazard:

   We use the best available equipment for reducing dust wherever it occurs in our operations. Beyond that,

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we are continually working, in cooperation with equipment manufacturers, to devise new and better devices for elimination of dust. In this respect we are far ahead of most of the industry.

2. Research on cause and cure of dust diseases:

For 12 years we have carried on intensive research on all phases of the cause and cure of dust diseases arising from the handling of diatomaceous earth and products made from it. For this work we retain the services of the most eminent specialist in the world.

3. Protection of employees:

For a long time we have conducted a thorough campaign among employees exposed to dust hazards so that they will be better prepared both to help reduce the dust hazard and to make proper use of protective devices provided for them. As our knowledge of the problem is amplified, protective measures and devices are improved.

4. Caution notice on containers for customer advice:

In view of our present knowledge of our materials, on November 16, 1951 the plant manager was instructed that all containers purchased from then on were to be printed with the caution notices.

In all of these ways we have moved and are moving just as fast as possible. Nothing that we know how to do is left undone and no way to increase our knowledge if left unexplored.

There is nothing to hide. We welcome any inquiries as giving opportunities to kill rumors and to have the facts known. We are proud of our leadership in tackling a difficult problem at our plant and we want people to know about what we are doing.

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