

FROM RICHARD S. DANCHIK
ENVIRONMENTAL HEALTH LABORATORY
ALCOA TECHNICAL CENTER - C

TO MEMORANDUM

RECEIVED
SEP 10 1980

1980-09-09

RE: SCREENING PROCEDURE FOR THE DETERMINATION OF ASBESTOS IN BULK
INSULATING MATERIALS

Ref: DHEW (NIOSH) Publication No 80-110

A simple and inexpensive test procedure to detect the presence of asbestos in bulk samples of insulation materials has been developed by NIOSH and critically evaluated at Alcoa's Environmental Health Laboratory. Attached is a copy of the procedure and EHL's evaluation.

The method tests for the presence of magnesium and iron from asbestos in bulk samples. The test is simple and can be readily used in the field to screen for the presence or absence of asbestos. Only a small portion of sample is needed for the test procedure. A colorimetric reagent is applied to the sample in a testing dish. A color change in the presence of magnesium or iron will virtually assure that the material contains asbestos.

A total of 198 field samples were tested by NIOSH indicating 126 positive and 72 negative results. Later laboratory analysis confirmed the presence of asbestos in 78 of the positive samples, but found no traces in 48 of the positive samples. The laboratory also confirmed the absence of asbestos in the 72 negative samples. The laboratory detected no false negative sample results. Therefore, the screening procedure theoretically could have saved 72 needless laboratory analyses.

The enclosed NIOSH procedure is a viable method for the screening of asbestos in bulk insulating materials. If you have any questions, or need more information, please contact the Environmental Health Laboratory.

R S Danchik

RICHARD S. DANCHIK

/ds

Attachment

Distribution attached

PLAINTIFF'S
EXHIBIT
AL-1467

 ALCOA

APC 003324

FROM RICHARD A. MILITO
ENVIRONMENTAL HEALTH LABORATORY
ALCOA TECHNICAL CENTER - C

TO DR. R. S. DANCHIK
ENVIRONMENTAL HEALTH LABORATORY
ALCOA TECHNICAL CENTER - C

1980-09-04

RE: EVALUATION OF NIOSH's "TEST FOR SCREENING ASBESTOS"
Ref: DHEW (NIOSH) Publication No. 80-110

An evaluation of the above captioned test was carried out following preparation of the required reagents in accordance with the authors' (Kim, Carter and Kupel) instructions. Samples used for testing included pure asbestos, asbestos sheet, a submitted sample containing asbestos and a submitted sample not containing asbestos. The EHL test results are as follows:

<u>Material</u>	<u>Mg⁺²</u>	<u>Fe⁺²</u>
Asbestos (pure)	positive	positive
Asbestos sheet	positive	positive
Sample No. 3603 (calcium silicate insulation)	positive	negative
Sample No. 3604 (medium asbestos by analysis)	positive	positive

Sample No. 3603 was then washed in glycerin and filtered. The Mg⁺² test then proved negative. This result confirms statements made by R. E. Kupel in our phone conversation of 1980 August 03, that certain elements (Ca) will exhibit a false positive unless initially treated with glycerin.

Our lab evaluation appears to have duplicated results I observed at Kettering Institute while attending NIOSH's Industrial Hygiene Chemistry Course 590. At Kettering a slight change in the method was observed. Instead of adding Mg or Fe reagent initially, acid is added, followed by NaOH for Mg or Fe reagent for Fe. This is if asbestos is strongly suspected. If not, then a glycerin wash is recommended prior to acid additions as stipulated in the method.

Comments

There appears to be no difficulty in determining the presence of Fe using this method. Some difficulty however may arise in determining the presence of Mg due to interferences associated with plaster-like substances. There is some indication that specific materials (i.e. calcium silicate) will dissolve upon the addition of phosphoric acid but this is not definite for all non-asbestos products.

APC 003325



R. S. Danchik
1980-09-04
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Conclusion

Our laboratory evaluation of the asbestos test agrees in most part with criteria stipulated by NIOSH. When materials suspected of containing asbestos are involved very little ambiguity exists. Materials comprised of non-asbestos structures require more careful preparation and scrutiny and the method should be strictly adhered to.

This test method does not supersede Title 29, CFR 1910.1001 for the determination of asbestos under OSHA regulation. What this test does do however, is determine the need to further investigate a particular environment under the above stated regulation and/or degree of precaution required while occupying such an area (e.g., removal of existing insulation from a particular structure).

Richard A. Milito
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/ds

cc: D. R. Balya