

FILE NAME: Insulation Contractors & Distributors (ICD)

DATE: 1974

DOC#: ICD029

DOCUMENT DESCRIPTION: Insulation Hygiene Progress Reports from the
Insulation Industry Hygiene Research Program

Environmental Sciences
Laboratory



of The City University
of New York

INSULATION HYGIENE PROGRESS REPORTS

FROM THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

Irving J. Selikoff, M.D., Program Director

Vol. 6 No. 2 Summer 1974

Court of Appeals Orders Review of Asbestos Standard

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in a historic decision on April 15, 1974, the U.S. Court of Appeals for the District of Columbia ordered the Secretary of Labor to review portions of the Asbestos Standard promulgated on June 7, 1972. The ruling, written by Circuit Judge McGowan, was in response to a petition filed by the AFL-CIO urging reversal of the existing standard.

The Court ruling, which was rendered in a forty-one page decision, contains the following provisions applicable to insulation work:

In those industries where a dust level of two fibers/ml is feasible, it should be implemented *before* 1976. Here, the court took note of testimony of Duncan Holaday of the I.H.R.P., industry witnesses and others that a two fiber standard could be implemented in commercial and industrial insulation work within two years (of April, 1972).

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Dr. Irving J. Selikoff, Director of the Insulation Industry Hygiene Research Program, answers questions regarding health effects of asbestos in discussions with Local 93 members David Patterson, Mano Di Rocco, Richard Younkman, Thomas Hughes, Thomas Smith, William Frazier, Edward Cisek and Mike Hamsworth.

Walter Hanna, Business Agent of Local 93, provides Dr. Henry Anderson of Mount Sinai with details of his past medical history.

Local 93 Exams Show Continuing Shipyard Problems

Examinations of Local 93 (Philadelphia Naval Shipyard) of the International Association of Heat and Frost Insulators and Asbestos Workers conducted by staff physicians of the Mount Sinai School of Medicine reveal asbestos problems still exist in shipyard work.

While much insulation material now has no asbestos content and the use of asbestos is required to be much better controlled, asbestos material in use by other trades poses a continuing problem. Here, asbestos cement and dust

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Vol. 8, No. 2

Summer 1974

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Insulation Industry Hygiene Research Program

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PURPOSES OF THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

1. To develop improved methods for minimizing exposure of insulation workers to dusts and fumes encountered in their work.
2. To disseminate knowledge of these improved methods of dust control wherever they may be applied advantageously and to offer cooperation, advice and assistance toward their universal adoption.

Dust Control Important in Alaskan Pipeline Work

Asbestos Workers from all parts of the United States will soon begin work insulating approximately 400 miles of the 48-inch diameter Alaskan pipeline. Additional insulation work will be required in pumping stations and tank farms. The work will commence this summer and continue for three years.

The insulation material to be used on the pipe will either be fibrous glass or rigid polyurethane foam. Little or no asbestos-containing materials are called for in the specifications.

While asbestos is not to be used, each of the two materials contemplated for use has been shown to produce cancer in animals. Because of the remoteness of operations, the extreme weather and working conditions, and the urgency to complete the job, special efforts are planned to assure that adequate precautions are taken to protect the health of insulators.

All of the procedures appropriate for dust control in asbestos work should be applied here—exhaust ventilation on all portable and stationary power tools, down draft cutting tables for hand saws, adequate clean-up procedures in fabrication shops, and use of disposable respirators, if warranted.

The possibility that dust from polyurethane foam insulation might be hazardous was discussed previously in Vol. 4, No. 2 of IHRP. In view of the possible extensive use of this material for insulating the pipeline, it is appropriate to review the available information on its possible health effects.

Workers who are sawing or abrading this material may be exposed to plastic dusts, dust from added fire retardants, dust from reinforcing materials, gases from unreacted TDI or MDI (See Vol. 5, No. 4) trapped in the insulation, and a mixture of decomposition products produced by heat from cutting or abrading operations.

No studies have been reported on effects on humans exposed to dusts from polyurethane insulation. However, the Institute of Environmental Medicine at New York University has conducted animal experiments which were designed to duplicate conditions of use.

Two groups of rats were exposed for

30 days to dusts and gases produced by grinding polyurethane insulation. In the low exposure group, the atmospheric concentration of dust was 10 milligrams per cubic meter (mg/m^3) and for the higher group it was 100 mg/m^3 . The Threshold Limit Value for "nuisance dusts" is 10 mg/m^3 . Thus, the "low" group was exposed to about one-third and the "high" group to about twice the dust concentration which is considered acceptable for long-term, daily, occupational exposures.

Considering the brief exposure time and the relatively low dust concentrations, the effects on the animals were disturbing. One rat out of 39 in the lower exposure group and 9 out of 45 in the higher group developed emphysema. In addition, one lung cancer was found in each group, and one liver cancer in the "low" group.

The investigators concluded that polyurethane insulating materials must be considered a serious industrial health hazard.

In a 1972 publication by Dr. Mead Stanton of the National Cancer Institute it was shown that fibrous glass and other inorganic fibers could produce mesothelioma when implanted into the pleura of rats. Subsequent investigations by the N.C.I. scientists have confirmed these results and a detailed description of their work was presented at the Lyon, France, Conference on the Biological Effects of Asbestos.

They concluded that the carcinogenicity of asbestos and fibrous glass (in their animal experiments) appeared primarily related to the structural shape of the materials, rather than to their physicochemical properties.

Of special concern here are fibers of a diameter less than 3-5 microns that may be inhaled and deposited in the lower spaces of the lung.

In commenting on the use of either of these materials on the Alaskan pipeline, Dr. Selikoff, Director of the I.I.H.R.P., stated, "We have learned the techniques and engineering controls that will allow asbestos to be used safely. These should be applied with equal vigor to the use of rigid polyurethane and fibrous glass."