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. 4, No. 1 Spring 1972

PLAINTIFF'S EXHIBIT

DOW-1567



Mr. Howard Forrest cutting pipe covering in test of new, economical dust collector (far left.)

Now Available: An Effective Economical Dust Collector

An effective, economical dust collector is now available for use with band saws, other powered equipment, and for general cleanup.

Environmental tests made on it at the Howard Forrest Co. factory, Houston, Texas, demonstrated the efficiency of the system. In these tests, made during the cutting of five-inch diameter pipe covering, airborne asbestos levels remained well below the new emergency standard for airborne asbestos dust.

High-Velocity Collector

The measurements were made in an enclosed area designed to represent a typical fabrication shop.

All measurements, taken at various locations in the room and in the breathing zone of the saw operator, showed dust levels to be less than 1 fiber/milliliter (longer than 5 microns) during 50 cuts on the material over a 10-minute period of time.

The collector developed by Howard Forrest is of the high-velocity type. It gains its effectiveness by establishing an air stream along the saw blade having a velocity several times that of the blade. As this air stream is directed to the collector, virtually all asbestos debris is carried along.

To Sell For Less Than $400

For the past two years, following earlier tests that showed this collection method to be especially effective (reported in Vol. 1, No. 4 of *Insulation Hygiene Progress Reports*), all Forrest saws have been equipped with an inlet pipe to which a high-volume collector could be attached.

What is unique about the Forrest collector is the low cost. It is designed to sell for less than $400, a fraction of the cost of a small band saw.

[redacted]

Labor Department Sets Asbestos Standard

An emergency standard for controlling occupational exposures to asbestos was announced by the Department of Labor on Dec. 7, 1971.

Acting under the provisions of the Williams-Steiger Occupational Safety and Health Act of 1970, the Labor Department established a limit of 5 fibers (longer than 5 microns) per milliliter of air for the time weighted average concentration of airborne asbestos to which a worker may be exposed. (See page 4 for details).

Certain provisions of the emergency standard are of particular importance to insulation workmen and contractors. It is now mandatory that asbestos cements and mortar be mixed in closed bags, that all waste be disposed of in sealed containers, and that vacuum cleaners be used for cleanup.

Standards Long Urged

Tests by the Insulation Industry Hygiene Research Program of the use of plastic bags for the mixing of cement have demonstrated their feasibility. In-bag mixing can reduce atmospheric dust levels to 1/10 that found when the cement is dumped in a trough or tub for mixing.

It is expected that such procedural requirements will be expanded in the permanent standard which must be issued before June 7, 1972.

Procedural standards have long been urged for adoption by the IIHRP. The use of plastic mixing bags, dust collectors on powered tools, adequate cleanup, down-draft cutting tables, and coated asbestos block all reduce workers' dust exposure

On Jan. 12, 1972, the Department of Labor published in the Federal register a proposed permanent standard for asbestos dust. This publication is the first step in the process of adopting a final standard. Written and oral comments have been solicited by the

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Insulation Hygiene Progress Reports

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from the

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Fred L. Pundsack, Ph.D. Vice President, Research and Development, Johns-Manville Corporation, New York, N.Y.

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.

Four Single-Use Respirators to Choose From

In this issue of Insulation Hygiene Progress Reports disposable respirators from four companies are described. Each of these will provide useful respiratory protection for asbestos workers during virtually all insulation work. Spraying of asbestos, however, or removal of old insulation will require air-supplied respirators.

The emergency standard promulgated by the Department of Labor requires respiratory protection when certain airborne dust concentrations are exceeded. See Section (a) of the Standard (page 4 of this issue).

When to use a Half-Mask Type

For atmospheres containing not more than 25 fibers per milliliter (greater than 5 microns in length) over an 8-hour average, or more than 50 fibers per milliliter over a period of 15 minutes, a half-mask respirator approved under Schedule 21B of the Bureau of Mines or a valveless respirator providing equivalent protection shall be used.

The four respirators shown here satisfy the criteria of the emergeny asbestos standard. In addition, a Bureau of Mines Schedule for valveless respirators will soon be published. In preliminary tests, each of these respirators met the standards of that schedule or of Schedule 21B.

These Require No Maintenance

To obtain the respirator information shown here, all respiratory equipment manufacturers were invited to submit descriptions of their single-use respirators for this issue. Four responded and we print their replies.

Single-use respirators were developed for the specific purpose of making available protective devices which do not require maintenance. They are intended for use during one shift or one day and are then to be discarded.

To be effective, however, they must be properly fitted and worn in accordance with the manufacturer's instructions. The variety of respirators shown here will allow a workman to choose the type that is most acceptable to him and best fits his face.

Initially, local safety equipment supply houses may not have these respirators in stock. However, purchasing arrangements can be made by writing directly to the manufacturers.

How Makers

In alphabetical order, here are descriptions of available respirators, as sent to us by their manufacturers:

AMERICAN OPTICAL CORPORATION



The AO R1050 respirator will utilize a fibrous filter element of large area to insure both a low resistance to breathing and a large storage capacity for retained dust particulate.

A malleable metal frame attached to the periphery of the fibrous filter element will permit the respirator wearer to shape the element to fit his face.

A soft gasket composed of a closed-cell plastic foam attached to the periphery of the filter element will seal the respirator to the wearer's face.

The respirator's head harness consists of two loops of elastic strapping attached to the respirator's periphery at four separate points (two points on each side of the respirator).

One loop of the head harness is positioned around the back of the respirator wearer's head, above his ears, while the other loop is positioned below his ears.

The respirator will be introduced to the market as soon as it has been approved.

M. A. Bousquet
Product Manager
Respiratory Protection
American Optical Corp.
Southbridge, Mass. 01550

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Describe their Various Respirators

MINNESOTA MINING AND MANUFACTURING

The MMM No. 8710 is a low-cost ($.50) single-use valveless respirator which has been tested extensively in the laboratory and in the field.

It was field-tested by insulation workers at the Puget Sound Naval Shipyard in Bremerton, Washington; at the Todd Shipyards in Seattle, Washington; at the World Trade Building in New York City; and at various other construction locations.

It is also being used in the Apprentice Training School of Local 17 in Chicago. All field tests have shown overwhelming acceptance from a comfort standpoint.

The MMM No. 8710 is currently available on a test basis, only, but production is being expanded as rapidly as possible and it should soon be available in most parts of the country. It will be distributed through Safety Supply Distributors.

Curtis A. Thorpe
Market Supervisor
Occupational Protection Products
3M Center
St. Paul, Minnesota 550101





SAFELINE PRODUCTS CORPORATION

The new single-use valveless dust respirator to be marketed by Safeline Products will be identified as the Safeline 5350 Single-Use Dust Respirator.

It will be equipped with a fibrous filter unit of exceptionally large area, so that it will have a very low breathing resistance and will not be plugged rapidly by retained dust particles.

It will contain a formable metal frame attached to the outer edge of the filter unit which will allow the user to shape the filter unit to fit his face. A soft gasket made of a closed-cell plastic foam attached to the outer edge of the filter unit will seal it to the face.

The respirator will be equipped with a simple head harness composed of two loops of elastic strap. Lengths of the straps are such that they will insure the respirator is properly sealed to the face and yet comfortable to wear, whether the user has a small or large head.

The ends of the elastic straps of each of the two head harness loops are attached at separate points of the respirator to insure that the respirator is properly balanced on the user's face. This respirator will be marketed after it has been approved.

George L. Cochrane
Sales Manager
Safeline Products
Box 550
Putnam, Connecticut 06260

THE WELSH MFG. COMPANY

The Welsh 7165 is a compact, easy-breathing, disposable respirator for dusts. It is unusually compact, and yet has a large filter area for outstanding efficiency and ease of breathing.

Economical: The 7165 is inexpensive enough to throw away daily.

Bureau of Mines approved: Meets the stringent Schedule 21B.

Company and worker acceptance: Extensive field testing has brought approval from major U.S. companies and from workers.

Easy fit: The 7165 is soft, non-irritating, and conforms readily to the face. A soft aluminum band may be formed to nose and cheek contours for a positive seal. In addition, fully adjustable head bands provide good respirator-to-face contact without undue pressure.

Compatible with safety glasses: The compactness, light weight (less than 2 oz.), and the contoured fit allow safety glasses and goggles to be worn comfortably.

Day-long comfort: The large, wrap-around filter, and low inhalation and exhalation resistance give a constant circulation of air. Cleaned, cool air comes in through the filter. Hot moist air goes out through the exhalation valve.

Welsh Manufacturing Co.
9 Magnolia Street
Providence, R. I. 02909
Phone: 401-351-3400



ST0016616

Excerpts from The New U.S. Asbestos Dust Standard

The New Emergency Asbestos Dust Standard published in The Federal Register *by the U.S. Department of Labor includes the following:*

(a) The 8-hour time-weighted average airborne concentration of asbestos dust to which employees are exposed shall not exceed 5 fibers per milliliter greater than 5 microns in length, as determined by the membrane filter method at 400-450X magnification (4 millimeter objective) phase contrast illumination. Concentrations above 5 fibers per milliliter, but not to exceed 10 fibers per milliliter, may be permitted up to a total of 15 minutes in an hour for up to 5 hours in an 8-hour day.

(b) Engineering methods, such as but not limited to, enclosure, vacuum sweeping, and local exhaust ventilation shall be used to meet the exposure limits prescribed in paragraph (a) of this section. Where such engineering methods are not feasible, or do not otherwise reduce the concentrations below those prescribed in paragraph (a) of this section, respiratory protective devices shall be provided and used in accordance with paragraph (c) of this section.

[*Paragraph (c) deals with respiratory protection, respiratory maintenance programs and conditions under which specified types of respirators must be used. The main impact of the section for asbestos workers is made clear in the story on page 2, column 2, of this issue.*]

(d) (1) When an employer has employees who are exposed to asbestos dust exceeding the limits prescribed in paragraph (a) of this section and the exposure results from the operations described in the remaining subparagraphs of this paragraph (d), the employer shall comply with the requirements of these subparagraphs relating to the operations involved. The requirements of this paragraph are in addition to those prescribed in paragraph (b) of this section.

(2) All hand- or power-operated tools which produce asbestos dust such as, but not limited to, saws, scorers, abrasive wheels, and drills shall be provided with local exhaust ventilation and dust collectors in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems: ANSI Z9.2-1971.

(3) Employees exposed to the spraying of asbestos or the demolition of pipes, structures, or equipment covered or insulated with asbestos shall be provided with respiratory protective devices in accordance with paragraph (c) (4) of this section.

(e) Asbestos cement, mortar, coatings, grout, and plaster shall be mixed in closed bags or other containers.

(f) Asbestos waste and scrap shall be collected and disposed of in sealed bags or other containers.

(g) All cleanup of asbestos dust and blowing shall be performed by vacuum cleaners. No dry sweeping shall be performed.

Labor Department Consults Both Labor and Industry

(Continued from first page)

Labor Department and the final standard will take notice of these.

To this end, hearings will be held on March 14, 1972, in Washington, D.C., at which labor, industry and other interested parties can supply information relevant to the final standard.

Commenting on the new emergency standard, Dr. Irving J. Selikoff, Director of the IIHRP, praised the Department of Labor for promptly acting on the request of labor unions and establishing an emergency standard for asbestos dust.

"The recognition of the occupational hazard of asbestos and the specification of safe means for its use is extremely important," he said. "We have here a good beginning, but much more must be done to establish a safe environment for asbestos workers."

Workers Played a Major Role in New Standard

The Asbestos Workers Union, the Insulation Industry Hygiene Research Program, and industry played important roles in the promulgation of the new emergency asbestos standard and in demonstrating the need and feasibility of some of its provisions.

The effectiveness of plastic bags for mixing cement was first published in *Insulation Hygiene Progress Reports* (Vol. 2, No. 1). Adequate cleanup and housekeeping have long been advocated.

The need for an effective single-use respirator was first emphasized by President Hutchinson of the Asbestos Workers Union to the U.S. Public Health Service as long ago as 1968.

Tests Made by Various Locals

The current availability of these respirators and their acceptability for use in the new emergency standard has followed extensive work by the IIHRP, respirator manufacturers, and the Johns-Manville Corp., which developed the first prototype of a disposable respirator.

Field testing of different respirators by a number of locals of the Asbestos Workers Union was especially useful in achieving suitable respirator design.

Of particular importance has been the cooperation of Local 12, in New York, and Local 32, in New Jersey, in participating in a health study of asbestos workers by Dr. Irving J. Selikoff of Mount Sinai School of Medicine.

This research, along with a related industrial hygiene study of the work environment of Asbestos workers in the New York and New Jersey area has indicated that a serious health hazard exists in the insulation industry at dust levels of 12 fibers/milliliter, the Threshold Limit Value effective before publication of the emergency standard.

Drive for a Permanent Standard

In fact, there is question whether the currently proposed emergency standard of 5 fibers/milliliter is adequate. (See Vol. 3, No. 2 for a discussion of this question.)

In a continuing drive to assure a safe permanent standard, both the staff of IIHRP and President Hutchinson of the Union will appear to testify in the hearings required before promulgation of a final standard, to present data pointing to an appropriate standard.

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