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SAFETY BULLETIN NO. 48-17
December 22, 1971

REICHHOLD CHEMICALS, INC.

S A F E T Y B U L L E T I N

ATTENTION! ALL GENERAL AND PLANT MANAGERS, ENGINEERS, SAFETY DIRECTORS, SUPERVISORS, PRODUCT MANAGERS, AND TECHNICAL SALES

U. S. FEDERAL WILLIAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

NEW FEDERAL ASBESTOS STANDARD PROMULGATED

OSHA has discovered that currently effective standards for ASBESTOS DUST concentrations are dangerous to an employee's health and has instituted a new emergency standard to reduce the ALLOWABLE CONCENTRATIONS OF THIS HAZARDOUS SUBSTANCE.

The old standard was up to 12 fibers dust per milliliter of atmosphere (if the fibers are greater than 5 microns in length) for an eight-hour time-weighted average.

The new emergency standard immediately effective has reduced the permissible as not to exceed 5 fibers per milliliter for the same sized particles. Employers must provide engineering controls to abate excessive dust concentrations and provide respiratory equipment where the controls are not feasible or capable of controlling the dust levels. Requirements have also been established for the use of dust collecting devices hand type and power tools and for gathering and disposing of asbestos dust.

An atmosphere containing more than 5 fibers per milliliter but not more than 10 fibers (each greater than 5 microns in length) may be permitted up to a total of 15 minutes per hour for up to 5 hours in an eight-hour day.

Protective respirators worn by employees must be inspected, cleaned, repaired, stored and ready for use in an easily accessible place. All hand and power tools which produce asbestos dust must be provided with local exhaust ventilation and dust collectors. Asbestos cement must be mixed in closed bags or containers, waste and scrap must be collected and stored or disposed in closed bags. All clean up work must be done with vacuum cleaners -- NO HAND SWEEPING IS ALLOWED.

The OSHA National Concensus Standards and Established Federal Standards Title 29 Labor, Chapter 17, Part 1910 (see my Safety Bulletin No. 48-21 has been ammended in Subpart G to include this new EMERGENCY ASBESTOS standard as SECTION 1910.93a "Asbestos Dust" under Section 1910.93 entitled "Air Contaminants". Ammendments were made to Volume 36 of the Federal Register as 15101 on August 13, 1971, and 23207 on December 7, 1971, as new Section 1910.93a and found attached. Section 1518.55(c) of the Construction Safety Act has been ammended to include 1910.93a, and Section 1910.12 has been ammended to note this change.

An RCI plant using asbestos as a raw material in the manufacture of polyesters or other products should take another critical look at its own methods for keeping the dust atmosphere of asbestos below the allowable limits and making certain that the protective hoods and exhaust fans are of adequate capacity, work properly, and that cleanup procedures comply with the law. Also, make certain that employees are provided with the prescribed protective devices and are using them on the job in every situation where the device is required. The Cooke Color and Chemical Division at Hackettstown, Rockport, and Visalia should bring its operations into compliance with this law at once.

Peter Fass has advised that our polyester group has been interested in finding a replacement for CAB-O-SIL, and Vince Morrow has supplied me with a toxicology report from Union Carbide on its CALIDRIA ASBESTOS which offers promise of doing a better job at a more economical cost and is derived from the mineral chrysotile which produces a less toxic form of asbestos than normally encountered when derived from the mineral crocidolite.

Persons working with asbestos over a long period of time sometimes develop a disabling lung disease known as ASBESTOSIS from breathing the dust, and there is now evidence that some cancerous tumors have also resulted from widely varying exposures. Because asbestos under certain conditions is considered a CARCINOGEN, it is expected that the TLV of 5 for asbestos will eventually be reduced to a TLV of 2 asbestos fibers (particles) per milliliter of air. In New York City asbestos spraying of structural steel as fireproofing construction will be banned in early 1972.

Attached is a copy of the new Federal Emergency Asbestos Law Section 1910.93a. Also enclosed is a copy of the Union Carbide "Asbestos Toxicology Report" dated April 1, 1970.

C. J. Windsor

C. J. Windsor
RCI CENTRAL MANUFACTURING
White Plains, New York

/cb

[¶ 6647.93a]

§ 29 [illegible] Asbestos dust.

(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.

(c) (1) (i) When the limits of exposure to asbestos dust prescribed in paragraph (a) of this section are exceeded and when engineering controls required by paragraph (b) of this section are not feasible or do not otherwise reduce the concentration of asbestos dust

[As amended at 36 F. R. 15101, Aug. 13, 1971, and at 36 F. R. 23207, Dec. 7, 1971.]

below those prescribed in paragraph (a) of this section, the employer shall require the use of respiratory protective devices. The selection of respiratory protective devices shall be limited to those specified in the remaining subparagraphs of this paragraph (c).

(ii) The employer shall require that each employee test his respiratory protective device before each use in order to insure a proper fit according to the manufacturer's instructions. The employer shall further provide for effective training or supervision of employees in the testing of respiratory protective devices for fit before their use.

(2) For an atmosphere 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 any period of 15 minutes, a reusable or single-use filter type respirator, operating with negative pressure during the inhalation phase of breathing, approved by the U.S. Bureau of Mines under the provisions of 30 CFR Part 14 (Bureau of Mines Schedule 21B), or a valveless respirator providing equivalent protection, shall be used.

(3) For an atmosphere containing not more than 250 fibers per milliliter greater than 5 microns in length over an 8-hour average, or more than 500 fibers per milliliter over any period of 15 minutes, a powered filter positive pressure respirator approved by the U.S. Bureau of Mines under the provisions of 30 CFR Part 14 (Bureau of Mines Schedule 21B) shall be used.

(4) For an atmosphere containing more than 250 fibers per milliliter greater than 5 microns in length over an 8-hour average a type C positive pressure supplied-air respirator approved by the U.S. Bureau of Mines under the provisions of 30 CFR Part 14 (Bureau of Mines Schedule 19B) shall be used.

(5) The employer shall establish a respirator program in accordance with the requirements of American National Standard *Practice for Respiratory Protection* Z88.2—1969.

(6) The respirators provided each employee shall be properly inspected, cleaned, repaired and stored.

(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.

[1910.93(a) added at 36 F. R. 23207, Dec. 7, 1971.]

Calidria ASBESTOS

THE DISCOVERY COMPANY

UNION CARBIDE CORPORATION • MINING AND METALS DIVISION • 270 PARK AVENUE, NEW YORK, NEW YORK 10017
PLEASE REPLY TO: "CALIDRIA ASBESTOS" - P. O. BOX 579 - NIAGARA FALLS, N. Y. 14302

ASBESTOS TOXICOLOGY REPORT

It has been known for years that some persons working in asbestos production were prone to develop a disabling lung disease. In time, this condition became known as asbestosis and was related to exposure to high concentrations of asbestos dust. With further experience, it was found that men could work with asbestos without development of lung disease if dust concentrations were kept below a certain level.

It has been generally accepted that a worker will not develop asbestosis if he is exposed to no more than 5 million particles per cubic foot of air, even if this exposure continues for his entire working lifetime. Although no cases of asbestosis are known to have occurred when exposures have been maintained at or below this level, the ACGIH (which sets the threshold limit value (TLV) in the U. S. A.) has indicated they intend to lower the TLV for asbestos to 2 million particles per cubic foot in an effort to increase the safety factor incorporated in the limit. The U. S. Department of Labor has already issued a regulation under the Walsh-Healy Act placing the TLV for asbestos at 2 million particles per cubic foot for public contracts in which they have jurisdiction. This concentration of dust is generally not visible in the average work area unless a beam of light causing a Tyndall effect is present. Usually the dust concentration must be from 8-10 million particles per cubic foot (MPPCF) before its presence is visible in average lighting conditions.

Several years ago, it was reported that there was an increase in the incidence of cancerous tumors, especially of the lung, associated with asbestosis. Recently there have been reports of some cancers occurring in individuals exposed to asbestos dust, but who have not developed clinical asbestosis. It is believed by most authorities that these cases have been associated with exposures significantly exceeding the Threshold Limit Value.

A type of cancer named mesothelioma has been noted to be associated with asbestos exposure in recent years. These tumors, while rather few in number to date, may occur in individuals with histories of only slight exposures, and that as much as twenty to forty years earlier. There is considerable evidence that crocidolite* is most frequently associated with mesotheliomas. From the data available it appears that the TLV of 5 MPPCF may not be low enough to protect against mesothelioma. Research on the problem continues.

*Union Carbide's CALIDRIA Asbestos is chrysotile, not crocidolite.

Control of asbestos dust exposure is therefore necessary. The control methods are the standard ones applicable to a variety of dusty operations. They include closed flow systems, wet processes where possible, and adequate exhaust ventilation where openings in the system are necessary. Pelletizing is sometimes used to improve the handling characteristics of otherwise dusty materials. Where satisfactory containment to stay within the Threshold Limit Value is impractical or impossible, efficient and reliable respirators are available for the protection of the employee. A program of environmental monitoring is highly desirable to determine that Threshold Limit Values are not being exceeded. In manufacturing industries it would be desirable to know the dust concentrations where the asbestos is dumped from bags into the process. Concentrations would also be determined where dusting occurs in finishing products. While initial dust determinations should be made at frequent intervals, once the level has been established as satisfactory, the frequency may be extended to occasional tests to assure continuation of a satisfactory condition.

Pre-employment and periodic physical examination of workers are desirable. These should include chest X-rays to insure that the worker has no chest condition prior to work with asbestos and to determine that no lung changes are resulting from work with asbestos.

It is believed that the addition of asbestos at the proposed levels during the manufacture of products would be harmless to the consumer. Total dusting would have to be well in excess of any levels acceptable to the consumer for the asbestos concentrations to approach the Threshold Limit Value.

In conclusion, while asbestos dust in excess of the Threshold Limit Value is potentially harmful, as are many other dusts encountered in industry, it is readily controlled as other such dusts and it can be used safely with appropriate precautions.

Industrial Medicine And
Toxicology Department
Union Carbide Corporation

Revised
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