Started ~ 1½ yrs ago

Calidria ASBESTOS

UNION CARBIDE

UNION CARBIDE CORPORATION · METALS DIVISION · P. O. BOX 579 · NIAGARA FALLS, N.Y. 14302 · TEL: 716-278-3376

PLAINTIFF'S EXHIBIT
UC-5207

August 20, 1979

Dear "Calidria" Asbestos Customer:

As part of our continuing effort to emphasize the importance of keeping you, your employees and your customers advised of the best practices for using asbestos safely, we are enclosing herewith a copy of our Material Safety Data Sheet for "Calidria" Asbestos, dated September 1, 1976. Additional copies are available from this office upon request.

In addition, we are enclosing copies of two pamphlets published by the Asbestos Information Association/North America (AIA/NA) as follows: "What You Should Know About Asbestos and Health" and "Recommended Practices for Handling Asbestos Fiber." Also enclosed is a listing of other published material available from AIA/NA. Copies of AIA/NA material may be obtained directly from AIA/NA.

Please advise each of your employees who handles our "Calidria" asbestos that you have such safety data sheets available for reference and deliver to them the foregoing pamphlets for their information and protection. If you do not receive sufficient pamphlets so that each employee handling "Calidria" asbestos will receive one copy of each pamphlet, we will be happy to furnish you with additional copies.

We are also concerned that your customers and ultimately their employees be kept informed by you of the best safety practices for using your products containing asbestos.

We would like to express our appreciation for your business. Please let me know if we can serve you better in any way.

Very truly yours,

R. E. Byrne, Jr.
Manager-Asbestos Technology

/rmm
Encs.

DEPOSITION EXHIBIT
BB
MYERS
5-17-82

PENGAD-Bayonne, N.J.

UCASB00650115

Published by AsbestosClaims.Law
asbestosclaims.law/library/19690/1

UNION CARBIDE

Material Safety Data

September 1, 1976
UNION CARBIDE CORPORATION • 4625 ROYAL AVENUE • NIAGARA FALLS, NEW YORK 14302
TELEPHONE (716) 278-3378

PRODUCT: Chrysotile Asbestos — CHEMICAL FORMULA: $Mg_6(OH)_8Si_4O_{10}$

TRADE NAMES: "Calidria" Asbestos

I. PHYSICAL DATA

BOILING POINT AND MELTING POINT: Not Pertinent

SPECIFIC GRAVITY (H_2O = 1): 2.45

VOLATILE CONTENT: Absorbed Water 1 – 4% By Weight. Structural Water Approximately 13% by Weight.

APPEARANCE: Pellets or Fine White Powder. No odor. Very Slight Solubility in Water.

II. HAZARDOUS INGREDIENTS

Asbestos contains no hazardous ingredients. However, the material itself can be hazardous under certain conditions. (See V below.)

III. FIRE AND EXPLOSION HAZARD DATA

NON-COMBUSTIBLE MATERIAL: No Fire or Explosion Hazard.

IV. REACTIVITY DATA

INERT MATERIAL: No Decomposition or Polymerization Conditions.

V. HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE TO AIRBORNE CONCENTRATION:

The current Occupational Safety and Health Standard (CFR 29, 1910.1001) contains the following exposure limits:

"The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed 2 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the membrane filter method at 400-450 X magnification (4 millimeter objective) phase contrast illumination. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method just noted."

EFFECTS OF EXPOSURE: CAUTION: Breathing asbestos may cause serious bodily harm.

EMERGENCY AND FIRST AID PROCEDURES: No acute toxicity. Use respirator if airborne asbestos fiber concentration exceeds OSHA limits.

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Avoid inhalation of dust. Remove spilled material by vacuum cleaner or by water wash.

WASTE DISPOSAL:

Bags and waste and scrap materials should be disposed of in a manner which will avoid airborne concentrations of asbestos, such as the use of dust-tight trash bags or containers. Ensure that disposal complies with all applicable federal, state or local regulations.

Union Carbide Corporation assumes no responsibility and makes no warranty, expressed or implied, representation, promise, or statement as to completeness, accuracy, or currency of any data provided.

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety Da... Published by AsbestosClaims.Law
ACL Doc 19690 · Page 2 of 17 asbestosclaims.law/library/19690/2

VII. SPECIAL PROTECTION INFORMATION

VENTILATION:

Local exhaust for each operation is preferable. (See American National Standards Institute booklet, Z9.2 — 1971.) General area exhaust is acceptable. No special considerations.

PROTECTIVE GLOVES: None	EYE PROTECTION: None

RESPIRATORY PROTECTION (1)

The current Occupational Safety and Health Standard CFR 29, 1910.1001 contains the following requirements for respiratory protection.

AIRBORNE CONCENTRATION(2)		
8-HOUR EXPOSURE (3)	CEILING CONCENTRATION	MINIMUM REQUIRED MASK TYPE(4)
2 maximum	10 maximum	Not required when allowable limits are not exceeded.
20 maximum	100 maximum	Reusable or single use air purifying respirator.
200 maximum	1000 maximum	Powered filter positive pressure.
Over 200	—	Type C positive pressure, air supplied.

(1) Allowed only during the time required for installation of engineering controls, when engineering controls are not technically feasible or adequate, and in emergencies. Current OSHA standards require that no employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by the use of a respirator.

(2) 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.

(3) 8-Hour time-weighted average.

(4) Only masks certified by NIOSH as acceptable for the exposures encountered may be used.

OTHER PROTECTIVE EQUIPMENT:

If the ceiling concentration limit is exceeded, clothing providing whole body covering shall be supplied and its use required.

VIII. SPECIAL PRECAUTIONS

Every place of employment where asbestos fibers are released must be monitored to determine exposure levels. If the permissible time-weighted average and ceiling concentration limits are not exceeded, no special precautions are required except:

a) Bag damage and dusting should be minimized and dust inhalation avoided.

b) A comprehensive medical examination is required for any employee exposed to airborne fibers within 30 days of first such employment, annually thereafter and on termination of employment.

c) Personal work clothing can become contaminated with asbestos and may constitute an exposure hazard. Such clothing should be handled and laundered in a manner to avoid airborne concentrations of asbestos.

d) Substantial medical evidence indicates that smoking will increase the risk from asbestos exposure. Those working with asbestos should not smoke.

Where exposure limits may be exceeded, reference should be made to the regulation CFR 29, 1910.1001 for details on caution signs, monitoring, change rooms, protective clothing laundering and record keeping.

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety Da... Published by AsbestosClaims.Law
ACL Doc 19690 · Page 3 of 17 asbestosclaims.law/library/19690/3

TO: Asbestos Information Association/North America
1745 Jefferson Davis Highway
Arlington, Virginia 22202
Phone (703) 979-1150

_____ (Date)

Please forward the materials noted below. We understand that we will be billed for costs plus shipping charges.



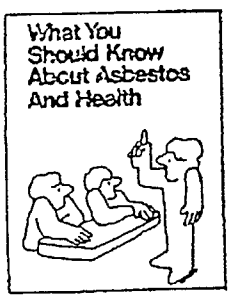
Handbook—"ASBESTOS—Federal & State Regulations" in three-ring binder. $16.50 each.

Quantity _____



A monthly report of items of interest to the asbestos industry. $48.00 per year to non-AIA/NA members.

Quantity _____

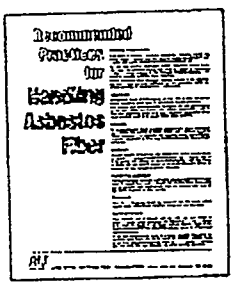


"What You Should Know About Asbestos and Health." Employee information pamphlet. 5"x7" 25¢ each.

Quantity _____

"Recommended Practices for Handling Asbestos Fiber." Heavy coated stock poster, 11"x14" printed blue on white for employee information boards. 25¢ each.

Quantity _____

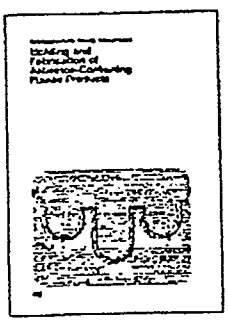


Also available in 3¾"x9" pamphlet form suitable for mailing in #10 envelope. 10¢ each.

Quantity _____

Booklets—"Friction Materials Work Practices Guide"—.10¢ each

Quantity _____



Booklets—Recommended Work Practices—$1.35 each

"Fabrication and Use of Asbestos Paper Products"

Quantity _____

"Shop and Field Fabrication of Asbestos Sheet Products"

Quantity _____

"Molding and Fabrication of Asbestos Containing Plastic Products"

Quantity _____

"Fabrication and Use of Asbestos Friction Materials"

Quantity _____

"Use and Handling of Asbestos Textile Products"

Quantity _____

(REV. 4/79)

UCASB00650118

Pamphlets— "Asbestos in the Atmosphere—A hazard to health?"
20c each
Quantity_____

"Asbestos in Water—A hazard to health?"
20c each
Quantity_____

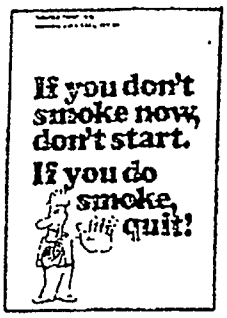
Poster Series— "Asbestos Health Hints for the Workplace." 15"x23" in various colors. Available at 40c each or complete series at $2.40.



Quantity _____



Quantity _____



Quantity _____



Quantity _____



Quantity _____



Quantity _____

Set of Six Posters _____
(Quantity)

Films— AIA/NA can make available, on a loan basis and at no charge, the edu-educational/training 16 mm films: "Working With Asbestos" (J-M, 20 min.); "Asbestos, The Indispensable Mineral" (J-M, 20 min.); "Living With Dust" (3M, 15 min.); and "Asbestos at Work" (AIC-UK, 20 min.).

Special Mailing Instructions:

_____
Company

_____
Address

_____ _____ _____ _____
City State Zip Signature

UCASB00650119

Title 29—LABOR

Chapter XVII—Occupational Safety and Health Administration, Department of Labor

PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS

Standard for Exposure to Asbestos Dust

On December 7, 1971, an emergency temporary standard concerning exposure to asbestos fibers was published in the FEDERAL REGISTER (36 F.R. 23207). In accordance with section 6(c)(3) of the Williams-Steiger Occupational Safety and Health Act of 1970, a notice of proposed rulemaking regarding a permanent standard for exposure to asbestos fibers was published in the FEDERAL REGISTER on January 12, 1972 (37 F.R. 466). The notice invited interested persons to submit both orally and in writing, data, views, and arguments concerning the proposal.

On or about January 24, 1972, the Advisory Committee on Asbestos Dust was established and requested to make written recommendations with regard to the proposed standard on asbestos. On or about February 1, 1972, the Department of Health, Education, and Welfare transmitted to the Secretary of Labor a criteria document containing Recommendations for an Occupational Exposure Standard for Asbestos by the National Institute for Occupational Safety and Health (NIOSH). Public notice was given of the receipt of the recommendations and their availability for inspection and copying. On or about February 25, 1972, the Advisory Committee on Asbestos Dust submitted its written recommendations to the Assistant Secretary of Labor for Occupational Safety and Health.

Pursuant to the notice of rule making, a hearing was held on March 14 through 17, 1972, for the purpose of receiving oral data, views, and arguments concerning the proposed standard. On or about March 31, 1972, the presiding hearing examiner certified to the Assistant Secretary of Labor for Occupational Safety and Health the record of the proceeding. The record includes prehearing written comments, a transcript of the oral presentations made at the hearing, and numerous exhibits received during the course of the hearing or within the period allowed after the close of the hearing.

The proposed standard dealt with (1) permissible concentrations of asbestos fibers; (2) methods of compliance; (3) warning signs; (4) monitoring; (5) medical examinations; and (6) recordkeeping. Each of these major proposals elicited comments, arguments, objections, and counterproposals. They all have been examined and considered.

1. *Acceptable concentrations of asbestos dust.* The proposed standard would limit occupational exposure to 8-hour time-weighted average (TWA) airborne concentrations of asbestos dust not exceeding five fibers longer than five micrometers per milliliter. Concentrations above five fibers but not to exceed 10 fibers (ceiling concentration) would be permitted up to 15 minutes in an hour, but for not more than 5 hours in any one 8-hour day.

NIOSH in effect has recommended that the five-fiber TWA and 10-fiber peak concentrations be permitted only for 2 years; thereafter, TWA concentrations should be not more than 2 fibers per cubic centimeter ($cm.^3$) of air, and peak concentrations should not exceed 10 fibers/$cm.^3$, with no time restriction. Numerous objections and counterproposals have been made, with regard to both the limits of asbestos fiber concentrations and the time periods to comply with them. Some, for example, have recommended return to a 12-fiber standard of an earlier day; i.e., a level adopted under the Walsh-Healey Public Contracts Act in 1969. Others have recommended a two-fiber standard to become effective in 6 months, then a one-fiber standard for 2 years, and finally a zero-fiber standard after 3 years. These recommendations give a fair indication of the wide spread of the counterproposals.

No one has disputed that exposure to asbestos of high enough intensity and long enough duration is causally related to asbestosis and cancers. The dispute is as to the determination of a specific level below which exposure is safe. Various studies attempting to establish quantitative relations between specific levels of exposure to asbestos fibers and the appearance of adverse biological manifestations, such as asbestosis, lung cancers, and mesothelioma, have given rise to controversy as to the validity of the measuring techniques used and the reliability of the relations attempted to be established. Because of the long lapse of time between onset of exposure and biological manifestations, we have now evidence of the consequences of exposure, but we do not have, in general, accurate measures of the levels of exposure occurring 20 or 30 years ago, which have given rise to these consequences. There are also controversies concerning the relative toxicity of the various kinds of asbestos, and varying hazards in different workplaces.

It is fair to say that the controversy has centered in the area between a two-fiber TWA concentration and five-fiber TWA concentration, with variations on the time needed for compliance. Many employers support a five-fiber TWA. Most medical opinion is divided between a two-fiber standard and a five-fiber standard.

In view of the undisputed grave consequences from exposure to asbestos fibers, it is essential that the exposure be regulated now, on the basis of the best evidence available now, even though it may not be as good as scientifically desirable. An asbestos standard can be reevaluated in the light of the results of ongoing studies, and future studies, but cannot wait for them. Lives of employees are at stake.

It is concluded that there should be one minimum standard of exposure to asbestos applicable to all workplaces exposed to any kind, or mixture of kinds, of asbestos. Reasons of practical administration preclude a variety of standards for different kinds of asbestos and of workplaces. Also, while the evidence tends to show that crocidolite, for instance, is more harmful than chrysotile, the evidence is not sufficient to establish separate standards for varieties of asbestos.

Because there must be one standard governing exposure to all varieties of asbestos, and in workplaces apparently more hazardous than others; because some present employees with regular exposure to asbestos have probably already accumulated great doses of asbestos fibers, due to higher levels of exposure in the past; because it appears that levels of exposure which may be safe with regard to asbestosis are not safe with regard to mesothelioma; because the statute requires the protection of every employee, even of one who may have regular exposure to asbestos during a working life which may reach, or even exceed, 40 years; and because of several other considerations which have been urged and are reflected in the record of the proceeding, the conflict in the medical evidence is resolved in favor of the health of employees. As of July 1, 1976, TWA concentrations of asbestos fibers longer than 5 micrometers will not be allowed to exceed two fibers/cc., with a ceiling value of 10 fibers/cc. The current TWA concentrations of five fibers, and

UCASB00650120

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety Da... Published by AsbestosClaims.Law
ACL Doc 19690 · Page 6 of 17 asbestosclaims.law/library/19690/6

ceiling concentrations of 10 fibers/cc, will be permitted until July 1, 1976, during what will be a transitional period deemed necessary to allow employers to make the needed changes for coming into compliance with the more stringent standard.

The record shows that the many work operations subject to the single asbestos standard (textile, manufacturing, industrial, and marine installation, etc.) will meet varying degrees of difficulty in complying with the standard. In some plants, extensive redesign and relocation of equipment may be needed. It appears, however, the delay in the effective date of the two-fiber standard will provide all employers a reasonable time to comply. At the same time, so long as the ceiling limit is complied with, no harm is reasonably expected to result from exposures during the transitional period.

2. *Methods of compliance.* It has been pointed out by many persons, that protection against asbestos fibers is best obtained by controlling the generation of fibers first, and secondly, by controlling the dispersion of released fibers into the ambient air of the workplaces. Therefore, the standard requires feasible technological controls and appropriate work practices as the primary means of compliance. Rotation of employees as a way of meeting the TWA concentration requirement is allowed only in stated exceptional circumstances, because, as a general rule, it would be difficult to implement. Personal protective equipment, such as respirators, cannot be relied upon because, among other reasons, they may be so uncomfortable as to be burdensome, except for short periods of time. Therefore, it is expected that respirators and shift rotation will be used during the period necessary to install engineering controls and to train employees in sound work practices, but, after technological compliance has been achieved, their use must be limited to special work situations and emergencies. Where both are practicable, shift rotation is required.

3. *Labeling.* The proposed standard stopped short of requiring labeling asbestos and asbestos-containing products. The proposed standard would have required only warning signs at locations where asbestos hazards are present. However, labeling, rather than warning signs, has proved to be a point of controversy. Both NIOSH and the Advisory Committee on Asbestos Dust recommended labels for asbestos products and containers, and these recommendations became very controversial in the course of the proceeding. Many counterproproposals have been made as to the language of the warning as well as to the products to be subject to the labeling requirements. Employers, in general, strongly contend that (1) finished products which effectively entrap asbestos fibers, so that these would not be released in the normal use of the products, should not be required to be labeled; and (2) words such as "danger" and "cancer" are unwarrantedly alarming.

Both contentions have merit, and the standard has been changed accordingly.

4. *Monitoring.* The proposed standard would have required personal monitoring and environmental monitoring. Many issues have been raised concerning the availability and reliability of measuring instruments, frequency of monitoring, and conditions in which monitoring should be required. The adopted standard takes the objections into consideration. It requires periodic monitoring at intervals no longer than 6 months, thus allowing considerable time and discretion, and prescribes the use of the membrane filter method, which is an acceptable method for determination of asbestos fibers.

It has also been recommended that employees or their representatives should have an opportunity to observe the monitoring. The recommendation has been accepted.

5. *Medical examinations.* The proposed standard would only require an appropriate medical examination on a periodic basis. The generality of the proposal has attracted many objections and also many helpful comments. The recommendations of NIOSH and of the Advisory Committee on Asbestos Dust were much more specific with respect to both frequency and type of medical examinations to be required. The comments vary as to the class of employees to be examined and as to the frequency of the examinations.

The adopted standard requires medical examinations both at the beginning and the termination of employments exposed to concentrations of asbestos fibers, and also requires annual medical examinations of every employee exposed to airborne concentrations of asbestos. It has been pointed out that in certain industries, such as construction, an employee may work for several employers during the same year. Accordingly, the standard does not require either preemployment, or termination, or periodic examinaton of any employee who has been examined in accordance with the standard within the past year.

One question which has been raised goes to whether the employer or the employee should be allowed to choose the examining physician. The standard gives the option to the employer. Since some employers already have a medical examination program in operation, and, also, have medical departments with some expertise in the diagnosis of abestos-related diseases, it seems more reasonable to permit them to utilize the present programs and expertise, than to permit an employee to choose a private general practitioner.

6. *Records.* The standard, as proposed and as adopted, requires maintenance of records of monitoring and of medical examinations. Most of the controversy in this area has revolved around the question whether an employer should be allowed to have access to the results of the required medical examinations. The apprehension of those who have argued against employer access is based on the expectation that some employers will use the medical examinations as a means of screening employment applicants, and worse, as grounds for discharging current employees, who show signs of being affected by exposure to asbestos. Since the purpose of the medical examinations is to monitor the health of employees exposed to the hazards of abestos, employees cannot in reason be granted the privilege of refusing to disclose to their employers results of occupational exposure. It does not make sense to require employers to provide medical examinations if they cannot know and use the results of the examinations. For these reasons the standard provides that employers may have a restricted access to some medical information.

On the other hand, there is no intention to allow employers to abuse medical information obtained pursuant to the Act, to the detriment of employees. Therefore, the administration of the medical records requirement will be closely watched, and, in cases of abuse, appropriate action will be considered.

The issues discussed above are believed to be the major ones. Numerous other issues have been raised in the rulemaking proceedings. Some have been referred to incidentally. Many recommendations, for instance, about work practices, are so obviously meritorious that their adoption needs no exposition here. Other recommendations and many objections have not been adopted for a variety of reasons which should be manifest. Several, for instance, have recommended the use of respirators only pursuant to a variance, or in cases of emergency and occasional short-term exposures. The recommendation with respect to variances undoubtedly has many merits, but is considered administratively impractical.

Accordingly, after consideration of the whole record of the proceeding, and pursuant to sections 6 (b) and (c) and 8(c) of the Williams-Steiger Occupational Safety and Health Act of 1970 (84 Stat. 1593, 1595, 1599; 29 U.S.C. 655, 657), 29 CFR 1910.4, and to Secretary of Labor's Order No. 12–71 (36 F.R. 8754), Part 1910 of Title 29 of the Code of Federal Regulations is amended as set forth below.

(1) Section 1910.93 is amended by revising Table G–3 to read as follows:

UCASB00650121

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety Da... Published by AsbestosClaims.Law
ACL Doc 19690 · Page 7 of 17 asbestosclaims.law/library/19690/7

§ 1910.93 Air contaminants.

• • • • •

TABLE G-3—MINERAL DUSTS

Substance	Mppcf	Mg/M³
Silica:		
Crystalline:		
Quartz (respirable)	250 [1]	10mg/M³ ÷
		%SiO₂+5
Quartz (total dust)		%SiO₂+2 30mg/M³
		%SiO₂+2
Cristobalite: Use ½ the value calculated from the count or mass formulas for quartz.		
Tridymite: [2] Use ½ the value calculated from the formulas for quartz.		
Amorphous, including natural diatomaceous earth	20	80mg/M³
		%SiO₂
Silicates (less than 1% crystalline silica):		
Mica	20	
Soapstone	20	
Talc	20	
Portland cement	50	
Graphite (natural)	15	
Coal dust (respirable fraction less than 5% SiO₂)		2.4mg/M³ or 10mg/M³
For more than 5% SiO₂		%SiO₂+2
Inert or Nuisance Dust:		
Respirable fraction	15	5mg/M³
Total dust	50	15mg/M³

NOTE: Conversion factors—
mppcf×35.3=million particles per cubic meter
=particles per c.c.

[1] Millions of particles per cubic foot of air, based on impinger samples counted by light-field techniques.

[2] The percentage of crystalline silica in the formula is the amount determined from air-borne samples, except in those instances in which other methods have been shown to be applicable

[3] As determined by the membrane filter method at 430× phase contrast magnification.

[4] Both concentration and percent quartz for the application of this limit are to be determined from the fraction passing a size-selector with the following characteristics:

Aerodynamic diameter (unit density sphere)	Percent passing selector
2	90
2.5	75
3.5	50
5.0	25
10	0

The measurements under this note refer to the use of an AEC instrument. If the respirable fraction of coal dust is determined with a MRE the figure corresponding to that of 2.4 Mg/M³ in the table for coal dust is 4.6 Mg/M³.

2. A new § 1910.93a is added to Part 1910, reading as follows:

§ 1910.93a Asbestos.

(a) *Definitions.* For the purpose of this section, (1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) *Permissible exposure to airborne concentrations of asbestos fibers*—(1) *Standard effective July 7, 1972.* The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(2) *Standard effective July 1, 1976.* The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) *Ceiling concentration.* No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(c) *Methods of compliance*—(1) *Engineering methods.* (i) *Engineering controls.* Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) *Local exhaust ventilation.* (a) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2–1971, which is incorporated by reference herein.

(b) See § 1910.6 concerning the availability of ANSI Z9.2–1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(iii) *Particular tools.* All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with subdivision (ii) of this subparagraph.

(2) *Work practices*—(i) *Wet methods.* Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.

(ii) *Particular products and operations.* No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.

(iii) *Spraying, demolition, or removal.* Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with paragraph (d)(2)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(d) *Personal protective equipment*—(1) Compliance with the exposure limits prescribed by paragraph (b) of this section may not be achieved by the use of respirators or shift rotation of employees, except:

(i) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section;

(ii) In work situations in which the methods prescribed in paragraph (c) of this section are either technically not feasible or feasible to an extent insufficient to reduce the airborne concentrations of asbestos fibers below the limits prescribed by paragraph (b) of this section; or

(iii) In emergencies.

(iv) Where both respirators and personnel rotation are allowed by subdivisions (i), (ii), or (iii) of this subparagraph, and both are practicable, personnel rotation shall be preferred and used.

(2) Where a respirator is permitted by subparagraph (1) of this paragraph, it shall be selected from among those approved by the Bureau of Mines, Department of the Interior, or the National Institute for Occupational Safety and Health, Department of Health, Education, and Welfare, under the provisions of 30 CFR Part 11 (37 F.R. 6244, Mar. 25, 1972), and shall be used in accordance with subdivisions (i), (ii), (iii), and (iv) of this subparagraph.

(i) *Air purifying respirators.* A reusable or single use air purifying respirator, or a respirator described in subdivision (ii) or (iii) of this subparagraph, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed no more than 10 times those limits.

(ii) *Powered air purifying respirators.* A full facepiece powered air purifying respirator, or a powered air purifying respirator, or a respirator described in subdivision (iii) of this subparagraph, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average concentrations of asbestos fibers are reasonably expected to exceed 10 times, but not 100 times, those limits.

(iii) *Type "C" supplied-air respirators, continuous flow or pressure-demand class.* A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 100 times those limits.

(iv) *Establishment of a respirator program.* (a) The employer shall establish a respirator program in accordance with

UCASB00650122

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety Da... Published by AsbestosClaims.Law
ACL Doc 19690 · Page 8 of 17 asbestosclaims.law/library/19690/8

the requirements of the American National Standards Practices for Respiratory Protection, ANSI Z88.2–1969, which is incorporated by reference herein.

b. See § 1910.6 concerning the availability of ANSI Z88.2–1969 and the maintenance of an historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(c) No employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by his use of a respirator. Such employee shall be rotated to another job or given the opportunity to transfer to a different position whose duties he is able to perform with the same employer, in the same geographical area and with the same seniority, status, and rate of pay he had just prior to such transfer, if such a different position is available.

(3) Special clothing: The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos fibers, which exceed the ceiling level prescribed in paragraph (b) of this section.

(4) Change rooms: (i) At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, the employer shall provide change rooms for employees working regularly at the place.

(ii) Clothes lockers: The employer shall provide two separate lockers or containers for each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(iii) Laundering: (*a*) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(*b*) Any employer who gives asbestos-contaminated clothing to another person for laundering shall inform such person of the requirement in (*a*) of this subdivision to effectively prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(c) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (g) of this section.

(e) *Method of measurement.* All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400–450 × (magnification) (4 millimeter objective) with phase contrast illumination.

(f) *Monitoring*—(1) *Initial determinations.* Within 6 months of the publication of this section, every employer shall cause every place of employment where asbestos fibers are released to be monitored in such a way as to determine whether every employee's exposure to asbestos fibers is below the limits prescribed in paragraph (b) of this section. If the limits are exceeded, the employer shall immediately undertake a compliance program in accordance with paragraph (c) of this section.

(2) *Personal monitoring*—(i) Samples shall be collected from within the breathing zone of the employees, on membrane filters of 0.8 micrometer porossity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of employees. In no case shall the sampling be done at intervals greater than 6 months for employees whose exposure to asbestos may reasonably be foreseen to exceed the limits prescribed by paragraph (b) of this section.

(3) *Environmental monitoring*—(i) Samples shall be collected from areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees. Samples shall be collected on a membrane filter of 0.8 micrometer porosity mounted in an open-face filter holder. Samples shall be taken for the determination of the 8-hour time-weighted average airborne concentrations and of the ceiling concentrations of asbestos fibers.

(ii) *Sampling frequency and patterns.* After the initial determinations required by subparagraph (1) of this paragraph, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than 6 months for employees whose exposures to asbestos may reasonably be foreseen to exceed the exposure limits prescribed in paragraph (b) of this section.

(4) *Employee observation of monitoring.* Affected employees, or their representatives, shall be given a reasonable opportunity to observe any monitoring required by this paragraph and shall have access to the records thereof.

(g) *Caution signs and labels.* (1) *Caution signs.* (i) *Posting.* Caution signs shall be provided and displayed at each location where airborne concentrations of asbestos fibers may be in excess of the exposure limits prescribed in paragraph (b) of this section. Signs shall be posted at such a distance from such a location so that an employee may read the signs and take necessary protective steps before entering the area marked by the signs. Signs shall be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers.

(ii) *Sign specifications.* The warning signs required by subdivision (i) of this subparagraph shall conform to the requirements of 20" x 14" vertical format signs specified in § 1910.145(d)(4), and to this subdivision. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in this subdivision.

Legend	*Notation*
Asbestos	1" Sans Serif, Gothic or Block.
Dust Hazard	3/4" Sans Serif, Gothic or Block.
Avoid Breathing Dust	1/4" Gothic.
Wear Assigned Protective Equipment.	1/4" Gothic.
Do Not Remain In Area Unless Your Work Requires It.	1/4" Gothic.
Breathing Asbestos Dust May Be Hazardous To Your Health.	14 point Gothic.

Spacing between lines shall be at least equal to the height of the upper of any two lines.

(2) *Caution labels*—(i) *Labeling.* Caution labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent, coating, binder, or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section will be released.

(ii) *Label specifications.* The caution labels required by subdivision (i) of this subparagraph shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

CAUTION

Contains Asbestos Fibers

Avoid Creating Dust

Breathing Asbestos Dust May Cause Serious Bodily Harm

(h) *Housekeeping*—(1) *Cleaning.* All external surfaces in any place of employment shall be maintained free of accumulations of asbestos fibers if, with their dispersion, there would be an excessive concentration.

(2) *Waste disposal.* Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

(i) *Recordkeeping*—(1) *Exposure records.* Every employer shall maintain records of any personal or environmental monitoring required by this section. Records shall be maintained for a period of at least 3 years and shall be made available upon request to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of the National

UCASB00650123

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety Da... Published by AsbestosClaims.Law
ACL Doc 19690 · Page 9 of 17 asbestosclaims.law/library/19690/9

Institute for Occupational Safety and Health, and to authorized representatives of either.

(2) *Employee access.* Every employee and former employee shall have reasonable access to any record required to be maintained by subparagraph (1) of this paragraph, which indicates the employee's own exposure to asbestos fibers.

(3) *Employee notification.* Any employee found to have been exposed at any time to airborne concentrations of asbestos fibers in excess of the limits prescribed in paragraph (b) of this section shall be notified in writing of the exposure as soon as practicable but not later than 5 days of the finding. The employee shall also be timely notified of the corrective action being taken.

(j) *Medical examinations*—(1) *General.* The employer shall provide or make available at his cost, medical examinations relative to exposure to asbestos required by this paragraph.

(2) *Preplacement.* The employer shall provide or make available to each of his employees, within 30 calendar days following his first employment in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination, which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

(3) *Annual examinations.* On or before January 31, 1973, and at least annually thereafter, every employer shall provide, or make available, comprehensive medical examinations to each of his employees engaged in occupations exposed to airborne concentrations of asbestos fibers. Such annual examination shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

(4) *Termination of employment.* The employer shall provide, or make available, within 30 calendar days before or after the termination of employment of any employee engaged in an occupation exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination which shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptomatology of respiratory disease, and pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second ($FEV_{1.0}$).

(5) *Recent examinations.* No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(6) *Medical records*—(i) *Maintenance.* Employers of employees examined pursuant to this paragraph shall cause to be maintained complete and accurate records of all such medical examinations. Records shall be retained by employers for at least 20 years.

(ii) *Access.* The contents of the records of the medical examinations required by this paragraph shall be made available, for inspection and copying, to the Assistant Secretary of Labor for Occupational Safety and Health, the Director of NIOSH, to authorized physicians and medical consultants of either of them, and, upon the request of an employee or former employee, to his physician. Any physician who conducts a medical examination required by this paragraph shall furnish to the employer of the examined employee all the information specifically required by this paragraph, and any other medical information related to occupational exposure to asbestos fibers.

3. A new § 1910.19 is added to Subpart B of Part 1910, reading as follows:

§ 1910.19 Asbestos dust.

Section 1910.93a shall apply to the exposure of every employee to asbestos dust in every employment and place of employment covered by § 1910.12, § 1910.13, § 1910.14, § 1910.15, or § 1910.16, in lieu of any different standard on exposure to asbestos dust which would otherwise be applicable by virtue of any of those sections.

Effective date. Paragraph (b)(2) of § 1910.93a shall become effective July 1, 1976. All other provisions of §§ 1919.93a, 1910.93, and 1910.19 shall become effective July 7, 1972. The current emergency temporary standard remains in effect until July 7, 1972.

(Secs. 6, 8, 84 Stat. 1593, 1598; 29 U.S.C. 655, 657; 29 CFR 1910.4; Secretary of Labor's Order No. 12–71, 36 F.R. 8754)

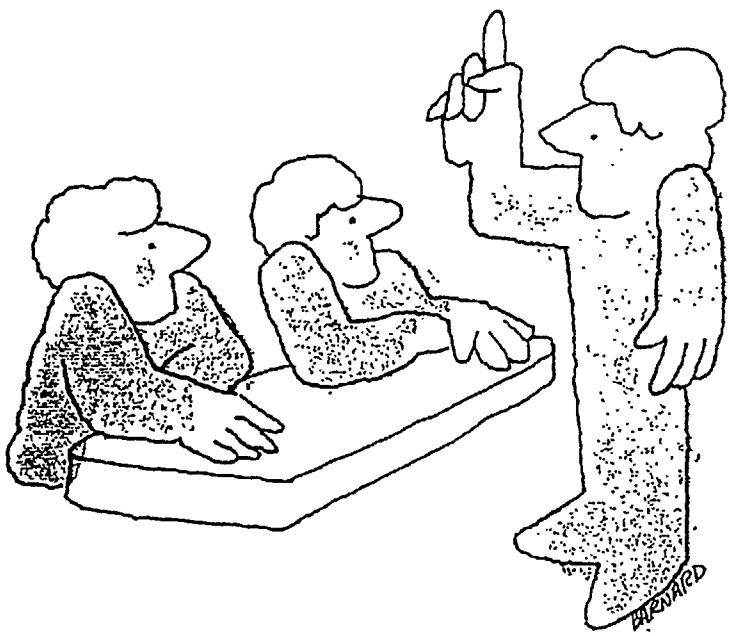
Signed at Washington, D.C., this 2d day of June 1972.

G. C. GUENTHER,
Assistant Secretary of Labor.

[FR Doc.72-8574 Filed 6-6-72;8:48 am]

UCASB00650124

What You Should Know About Asbestos And Health



UCASB00650125

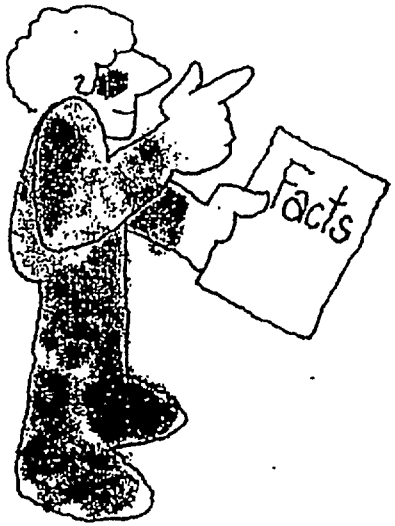
Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety D...
ACL Doc 19690 · Page 12 of 17

Frankly Speaking

You certainly are important to your family and loved ones, and you are important to the company. It makes good sense for the company to do everything possible to protect you in your working environment, and for you to take every precaution to avoid possible hazards to your health.

If your work involves the use of asbestos or asbestos-containing products, you should be aware of:

- What the health hazards can be.
- What obligations your employer has to protect you.
- What you can do as an individual to protect your own health and that of your fellow employees.



UCASB00650126

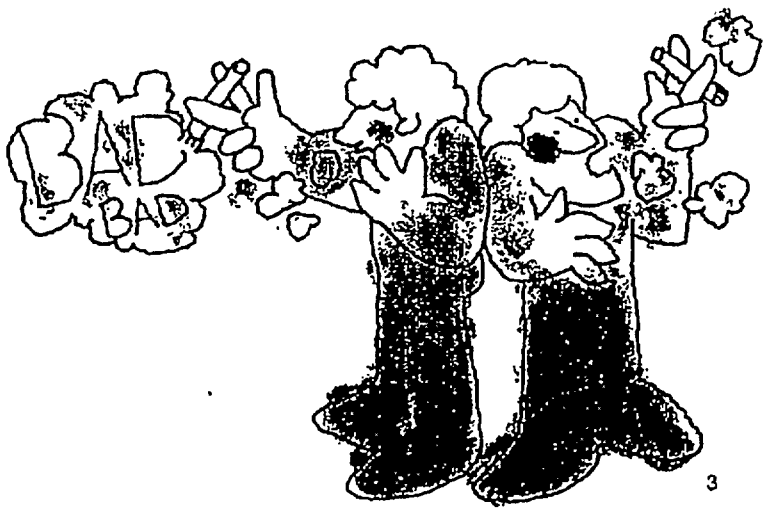
These are the Facts

Exposure to asbestos fiber can increase the risk of developing certain diseases over a period of years. The four diseases associated with inhalation of asbestos fiber are: asbestosis — a non-malignant scarring lung condition; cancer of the lung, and to a lesser degree, cancer of the digestive tract; and mesothelioma — a rare cancer of the lining of the chest or abdominal cavities.

Reduction of asbestos dust exposure is at present the only known method of preventing disease among asbestos industry workers. Experience has shown that when dust levels are low, the risk to the worker and the incidence of asbestos-related disease is low.

Now . . . About Smoking

It has been established that cigarette smoking **greatly** increases the risk of developing lung cancer in persons exposed to asbestos. Some risk may also be present in nonsmoking asbestos industry workers.

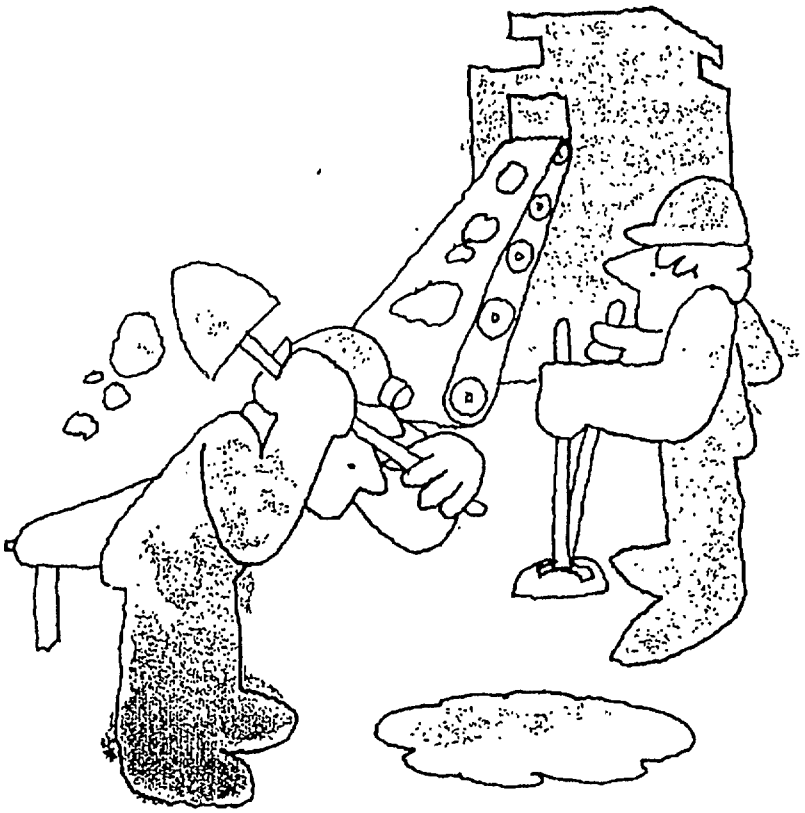


Published by AsbestosClaims.Law
asbestosclaims.law/library/19690/12

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety D...
ACL Doc 19690 · Page 13 of 17

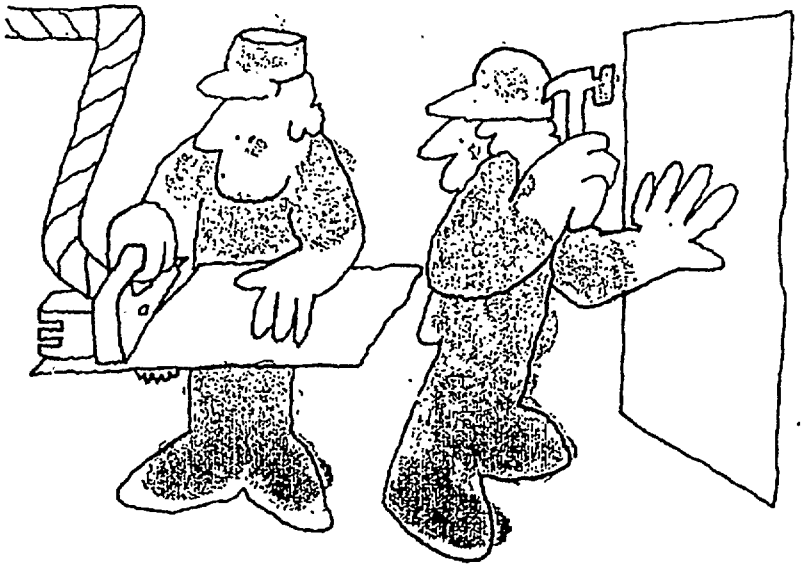
If You Work in a Plant or Mine

Employees in asbestos mines, mills, or product manufacturing plants will be exposed to airborne asbestos fiber. But, when dust levels in mines, mills and factories are properly controlled, the asbestos content of the air will be low and within safe levels, and will not be a hazard to workers.



If You Work in Field Operations

Most finished asbestos-containing products, when correctly used, will not produce dust levels high enough to be a hazard to workers. In more than 90% of the asbestos-containing products made in the United States, the asbestos fibers are "locked in" the product by means of cement, plastic or other binders. Consequently, the fibers are not easily released into the air, except during sawing or certain other machining operations. The tear-out, removal or demolition of old asbestos-containing insulations also can release fibers. Such operations must be carried out with approved methods of dust suppression and control.



UCASB00650127

Published by AsbestosClaims.Law
asbestosclaims.law/library/19690/13

Regulations to Protect You

To insure the safety of all, occupational standards for exposure to asbestos dust have been established by the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor. These standards are designed to protect you from exposure to potentially hazardous amounts of asbestos dust and are being carefully observed by the company.

Here is what these standards provide:

1 A SAFE WORKPLACE
Your employer is required to make sure that no employee is exposed to more asbestos dust than permitted by the government standard. Your company will exert every effort to keep levels not only below permissible limits, but as low as possible.

2 IN CASE OF RISK
If exposure limits are exceeded, the employee will be notified by his employer, and will be informed of the corrective measures being undertaken to reduce his exposure to permitted levels.

3 CORRECTIVE ACTION
Engineering controls and safe work practices will be the approved methods of correction.



4 IN THE MEANTIME
While corrective measures are being taken, the employee will be protected by other means, which may include the wearing of an approved respirator provided by his employer, or by shift rotation.

5 TEMPORARY MEASURES
The use of respirators or shift rotation to achieve proper dust control will be permitted only (a) during the time necessary to install engineering controls or to institute safe work practices, (b) in situations where such controls or practices are not technically feasible, or (c) in emergencies.

6 AND ONLY IF YOU PASS THE MEDICAL
No employee will be assigned to a task requiring the use of a respirator if his most recent yearly medical examination indicates that he would not be able to function properly while wearing one, or if the wearing of the respirator would create a hazard to the employee's health or safety.

7 SPECIAL PROTECTION WHEN NEEDED
Protective clothing, change rooms, and separate clothes lockers will be provided for employees in situations where exposure standards are exceeded.



UCASB00650128

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety D...
ACL Doc 19690 · Page 14 of 17
Published by AsbestosClaims.Law
asbestosclaims.law/library/19690/14

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety D...
ACL Doc 19690 · Page 15 of 17

8 CHECKING THE AIR

Monitoring of workplace air will be conducted by the employer to assure that government standards are being met. Employees may review results of the monitoring in their particular job areas.

9 SIGNS TO GUIDE YOU

Caution signs will be posted in work areas where airborne levels of asbestos may be in excess of the exposure limits, and where respiratory protection and special handling precautions are required. Employees should obey these signs at all times.

10 CAUTIONS ON PRODUCTS, TOO

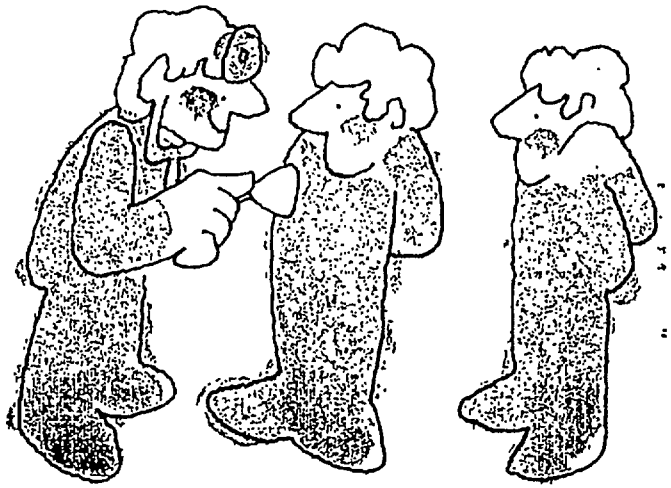
Caution labels will be placed on asbestos-containing products which, during any reasonably foreseeable use, handling, application, machining or disposal may release asbestos fiber into the air in concentrations that exceed the exposure limits.

11 ANNUAL CHECK-UPS

The employer, at no cost to the employee, will provide yearly medical examinations for employees exposed to asbestos dust. Pre-employment and termination medical exams also are provided.

12 COUNSELING AND RESULTS AVAILABLE

Results of each employee's medical examination will be reviewed with him by a physician, and, at the worker's request, his own medical exam records will be made available to his family physician.



And, Most Important . . .

On the advice of medical specialists: If you work with asbestos and you do smoke cigarettes, quit smoking! If you work with asbestos and do not smoke, don't start!

Your family and the company need you and your special abilities. Guard your health in every way, but particularly where cigarette smoking is concerned.

If you don't smoke cigarettes now and never have smoked them regularly, statistical studies show you have only a small risk of getting lung cancer as an asbestos worker.

After You Leave Work

You also should take precautions to prevent taking asbestos home on any work clothes or other materials in order to protect members of your family from possible exposure to asbestos dust.

To reduce the possibility of carrying asbestos fibers home on your person and clothing, facilities for showering and changing from work to regular clothes may be provided by your employer. Work clothing taken home for laundering should be carried in a closed bag or container and then washed separately from other family clothing.

Never take loose fiber home. Your family should not be needlessly exposed to asbestos dust through any carelessness on your part.



UCASB00650129
Published by AsbestosClaims.Law
asbestosclaims.law/library/19690/15

Union Carbide trial exhibit UC-5207: R. E. Byrne, Jr. to "Calidria" Asbestos Customers Enclosing Material Safety D...
ACL Doc 19690 · Page 16 of 17

What Else Can You Do?

Industrial safety and health can never be the responsibility of only one person. Both you and your employer must work together to provide a safe and healthy environment.

- For safety in specialized areas, detailed work practices must be instituted to make sure we are complying with *government regulations. As an employee, it is your* duty to follow these work practices at all times. Never take shortcuts that may endanger your health and that of *others.*
- If you see a possible hazard that your employer may have overlooked, bring it to his attention.
- If you can suggest more efficient and safer work practices, do so. If you are not sure how to handle a material or perform an operation without creating dust, talk with your supervisor first.



REMEMBER

- Asbestos fiber may be hazardous to your health, and exposure to it, over a period of time, may increase your risk of developing asbestosis, cancer of the lung or digestive tract, or mesothelioma.
- Every precaution should be taken by you and your employer to keep dust levels low and to avoid unnecessary exposure.
- The asbestos industry is working hard to control dust exposure and to alert every worker to proper safety precautions. Government and company regulations designed to protect you and other workers against exposure to asbestos dust should be strictly followed by everyone.
- The vast majority of the thousands of finished asbestos products are not hazardous when properly handled or used, but workers who are engaged in their manufacture, fabrication or installation should be aware of possible dangers. Don't be careless — urge your fellow workers not to be.
- *Asbestos is used in some 3,000 products daily throughout* the world . . . products that help prevent and control fire in our homes, schools, factories, offices, hospitals and theaters . . . products that help *stop our cars and* trucks . . . products that save fuel and energy in this important time of conservation. If we are to continue *making these much-needed products, it is important that* you and your employer cooperate in maintaining the highest standards of safety and health on the job.

UCASB00650130
Published by AsbestosClaims.Law
asbestosclaims.law/library/19690/16



ASBESTOS INFORMATION ASSOCIATION
1745 Jefferson Davis Highway,
Arlington, Virginia 22202

5/9-79

UCASB00650131