

Reichhold Chemicals, Inc.

Inter-Office Communication

To: Mr. T. V. Morrow

From: White Plains

Date: November 1, 1974

Subject: Use of Asbestos in Polyesters

cc: Messrs. H. H. Reichhold
E. E. Shea
P. J. Fass
C. S. Stryker
C. B. Breedlove - Detroit
P. S. Hewett - "
J. E. Maass - Azusa
R. H. Melinat - "
T. P. Shumaker - Tuscaloosa
R. K. Stensrud - Tacoma
R. B. Walker - "
D. L. Wasson - Azusa
J. G. Weinmann - Elizabeth

Dear Vinny:

Due to the dramatic increase in the price of thixotropic agents used in polyesters, you are again considering the use of asbestos. As you know, there has been extensive correspondence on this subject throughout the corporation. This correspondence was initiated by a letter addressed to me from Ed Jansen dated March 15 to which I replied with my now famous March 28 memorandum. This memorandum was written without the benefit of knowledge of any testing that was done within RCI relating to the use of asbestos in polyesters. The memorandum to which you have repeatedly referred giving the results of testing done in Azusa is dated May 7, six weeks after my memorandum.

The form of asbestos which you contemplate using in your polyesters is a pelletized material supplied by the Union Carbide Corporation, known as Calidria®. Because of the pelletized form of this material, it is promoted as a non-dusting material. It is claimed that through the use of Calidria few, if any, free asbestos fibers are released into the atmosphere thus negating to a large degree an employer's responsibility under the current OSHA asbestos standards.

My letter of March 28 is correct and is the corporate guideline for the use of all asbestos products regardless of form. However, this memorandum must be read in view of the specific circumstances (testing results) at any given location.

RECEIVED
NOV 5 1974
REICHHOLD CHEMICAL, INC.
AZUSA, CALIF.

Union Carbide conducted tests at Azusa on November 7, 1972 wherein they measured a ceiling concentration fiber count of 1.6 or a TWA of .27 for the preparation of four batches in an 8 hour shift. This is considerably below the 5 fiber permissible 8 hour TWA. If you make the assumption that the TWA in any work or storage location is in this range, then according to my letter of March 28, Reichhold will be required to do the following:

1. Respirators - Respirators are not required as long as the 8 hour TWA and ceiling limits are observed. Employees, however, should be required to wear respirators when (a) dumping asbestos containers in the work area, (b) disposing of empty asbestos containers, i.e., placing them in a sealed drum and covering them, (c) cleaning up asbestos waste and spills and (e) unloading any box, car or trailer in which loose asbestos is apparent. A respirator program complying with OSHA Regulation 1910.134 as outlined in your RCI Safety Manual must be instituted and observed.

2. Clothing - No special clothing or change rooms and/or clothes lockers are required. However, RCI should provide each employee who routinely handles asbestos with at least one clean work uniform each work week. Dirty uniforms will be placed in a plastic bag bearing a caution label for laundering at the expense of RCI. The laundry must be notified in writing of the asbestos and a standard form letter is attached.

3. Monitoring - Monitoring of both the breathing zone of the employee and the representative work areas are required at least every six months. Records must be maintained for at least three years. Employees normally working in areas subject to sampling and/or their designated representatives shall have access to the records.

4. Caution Signs - Caution signs are not required providing airborne concentrations of asbestos fibers are less than the prescribed exposure limits. However, scrap asbestos and other materials which may contain free asbestos must be placed in sealed containers and labeled. Any outside waste disposal contractor handling any of the above must be notified that the waste may contain asbestos. A standard form letter is attached.

5. Medical Examinations - We must provide, or make available, to each employee routinely handling or exposed to airborne concentrations of asbestos fibers, at our expense, a comprehensive medical examination as specified in the regulations, i.e., 1910.93a (J). These examinations will be conducted or made available to the employee at the following times:

(a) Prior to or within 30 calendar days of his first employment in an area where he is exposed to airborne asbestos.

(b) Every year during his employment, as described above, within 30 calendar days of the anniversary of his last examination.

(c) Upon the employee's termination of employment with RCI or upon his transfer to another work area where he is not exposed to airborne concentrations of asbestos fibers.

All medical records shall be retained for at least 20 years. These records must be made available upon the request of an employee or former employee to his physician.

Those employees who decline to take any medical examination provided by RCI, at its expense, will be required to sign a waiver form to be provided by White Plains.

Each employee who has been exposed to a concentration in excess of the ceiling limit must be notified in writing within five days. Employees or their representatives (i.e., the union) must be given access to the records.

Union Carbide has advised that the state of California has adopted a new rule regarding the medical examinations. Their interpretation is that if the TWA is half of the standard, then medical examinations are waived. I am currently verifying this and will advise as soon as this is confirmed.

Attached is a copy of the OSHA Standard 1910.93a "Asbestos".

Please do not hesitate to contact me if any of my comments appear to conflict with the information provided to you by your supplier.

Very truly yours,

T. R. Madden

TRM:cb

Attachments

REICHHOLD CHEMICALS, INC.

Creative Chemistry . . . Your Partner in Progress

Executive Offices • RCI BUILDING, WHITE PLAINS, N. Y. 10602

CABLE: BECKACITE WHITE PLAINS
TELEPHONE: 914 — 948-5200

This is to advise you that under the rules promulgated by the Occupational Safety and Health Administration (OSHA), Reichhold Chemicals, Inc. is required to inform you that a portion of the clothing given to you for laundering has been exposed to airborne asbestos fibers. Your attention is drawn to paragraph 1910.93(a) - Asbestos, of the Occupational Safety and Health Standards which gives permissible exposure limits to airborne concentrations of asbestos fibers which must be observed by you during the laundering procedure.

Due to the fact that the airborne concentration of asbestos fibers at our facilities is well below the permissible limits and that these work uniforms are only worn by the employee for one working day, you should encounter no particular problem at your laundering facilities.

Very truly yours,

REICHHOLD CHEMICALS, INC.

Creative Chemistry . . . Your Partner in Progress

Executive Offices • RCI BUILDING, WHITE PLAINS, N. Y. 10602

CABLE: BECKACITE WHITE PLAINS
TELEPHONE: 914 — 948-5200

This is to advise you that under the rules promulgated by the Occupational Safety and Health Administration (OSHA), Reichhold Chemicals, Inc. is required to inform you that a portion of the waste given to you for disposal contains asbestos. The asbestos containing waste has been placed in separate sealed drums which have been labelled according to the regulations. Your attention is drawn to paragraph 1910.93(a) - Asbestos, of the Occupational Safety and Health Standards which gives permissible exposure limits to airborne concentrations of asbestos fibers which must be observed by you during the waste disposal process.

The total amount of asbestos-containing waste given to you for disposal comprises only shipping containers and floor sweepings, we would not expect you to experience any difficulties at your disposal facilities.

Very truly yours,

REICHHOLD CHEMICALS, INC.

Creative Chemistry . . . Your Partner in Progress

Executive Offices • RCI BUILDING, WHITE PLAINS, N. Y. 10602

CABLE: BECKACITE WHITE PLAINS
TELEPHONE: 914 — 946-6200

Reichhold Chemicals, Inc.

Attention: Plant Manager

Dear Sir:

I acknowledge that I have been offered a comprehensive medical examination as set out in the Occupational Safety and Health Standards, paragraph 1910.93(a)-Asbestos, at the expense of Reichhold Chemicals, Inc.

I decline such physical examination.

Very truly yours,

TABLE G-2

Material	8-hour time weighted average	Acceptable ceiling concentration	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hour shift: Concentration	Maximum duration
Benzene (Z37.4-1969)	10 p.p.m	25 p.p.m	50 p.p.m	10 minutes.
Beryllium and beryllium compounds (Z37.29-1970).	2 μg./M³	5 μg./M³	25 μg./M³	30 minutes.
Cadmium fume (Z37.5-1970)	0.1 mg./M³	3 mg./M³		
Cadmium dust (Z37.5-1970)	0.2 mg./M³	0.6 mg./M³		
Carbon disulfide (Z37.3-1968)	20 p.p.m	30 p.p.m	100 p.p.m	Do.
Carbon tetrachloride (Z37.17-1967)	10 p.p.m	25 p.p.m	200 p.p.m	5 minutes in any 4 hours.
Ethylene dibromide (Z37.31-1970)	20 p.p.m	30 p.p.m	50 p.p.m	5 minutes.
Ethylene dichloride (Z37.21-1969)	50 p.p.m	100 p.p.m	200 p.p.m	5 minutes in any 3 hours.
Formaldehyde (Z37.10-1967)	3 p.p.m	5 p.p.m	10 p.p.m	30 minutes.
Hydrogen fluoride (Z37.28-1969)	do			
Fluorides as dust (Z37.28-1969)	2.5 mg./M³			
Lead and its inorganic compounds (Z37.11-1969).	0.2 mg./M³			
Methyl chloride (Z37.18-1969)	100 p.p.m	200 p.p.m	300 p.p.m	5 minutes in any 3 hours.
Methylene chloride (Z37.3-1969)	500 p.p.m	1,000 p.p.m	2,000 p.p.m	5 minutes in any 2 hours.
Organo (alkyl) mercury (Z37.30-1969)	0.01 mg./M³	0.04 mg./M³		
Styrene (Z37.15-1969)	100 p.p.m	200 p.p.m	600 p.p.m	5 minutes in any 3 hours.
Trichloroethylene (Z37.19-1967)	do	do	300 p.p.m	5 minutes in any 2 hours.
Tetrachloroethylene (Z37.22-1967)	do	do	do	5 minutes in any 3 hours.
Toluene (Z37.12-1967)	200 p.p.m	300 p.p.m	500 p.p.m	10 minutes.
Hydrogen sulfide (Z37.2-1966)		20 p.p.m	50 p.p.m	10 minutes once only if no other measurable exposure occurs.
Mercury (Z37.8-1971)		1 mg./10M³		
Chromic acid and chromates (Z37.7-1971)		do		

TABLE G-3—MINERAL DUSTS

Substance	Mppcf	Mg/M³
Silica:		
Crystalline:		
Quartz (respirable)	250	10mg/M³
	%SiO₂+5	%SiO₂+2
Quartz (total dust)		30mg/M³
		%SiO₂+2
Cristobalite: Use ½ the value calculated from the count or mass formulae for quartz.		
Tridymite: Use ½ the value calculated from the formulae for quartz.		
Amorphous, including natural diatomaceous earth	20	80mg/M³
		%SiO₂
Silicates (less than 1% crystalline silica):		
Mica	20	
Soapstone	20	
Talc (non-asbestos-form)	20	
Talc (fibrous). Use asbestos limit.		
Tremolite (see talc, fibrous)		
Portland cement	50	
Graphite (natural)	15	
Coal dust (respirable fraction less than 5% SiO₂)		2.4mg/M³ or
For more than 5% SiO₂		10mg/M³
		%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.

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

† 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.

‡ As determined by the membrane filter method at 430× phase contrast magnification.

§ 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 4.5 Mg/M³.

¶ Containing < 1% quartz; if > 1% quartz, use quartz limit.

§ 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;

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(ii) In work situat 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 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 gned 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) S ples shall be collected from within breathing zone of the employees membrane filters of 0.8 micrometer rosity mounted in an open-face holder. Samples shall be taken for determination of the 8-hour t weighted average airborne concen tions and of the ceiling concentratio asbestos fibers.

(ii) Sampling frequency and patt After the initial determinations req by subparagraph (1) of this paragr samples shall be of such frequency pattern as to represent with reason accuracy the levels of exposure of ployees. In no case shall the samplin done at intervals greater than 6 mo for employees whose exposure to asb may reasonably be foreseen to ex the limits prescribed by paragraph of this section.

(3) *Environmental monitoring*-samples shall be collected from area a work environment which are repres ative of the airborne concentration asbestos fibers which may reach breathing zone of employees. Sam shall be collected on a membrane f of 0.8 micrometer porosity mounte an open-face filter holder. Samples s be taken for the determination of th hour time-weighted average airbo concentrations and of the ceiling centrations of asbestos fibers.

(ii) *Sampling frequency and patte* After the initial determinations requ by subparagraph (1) of this paragr samples shall be of such frequency pattern as to represent with reason accuracy the levels of exposure of employees. In no case shall samplin at intervals greater than 6 months employees whose exposures to asbe may reasonably be foreseen to ex the exposure limits prescribed in p graph (b) of this section.

(4) *Employee observation of moni ing.* Affected employees, or their resentatives, shall be given a reasona opportunity to observe any monito required by this paragraph and shall l access to the records thereof.

(g) *Caution signs and labels.* (1) C tion signs. (i) *Posting.* Caution si shall be provided and displayed at e location where airborne concentrati of asbestos fibers may be in excess of exposure limits prescribed in paragr (b) of this section. Signs shall be po at such a distance from such a locat so that an employee may read the si and take necessary protective steps fore entering the area marked by signs. Signs shall be posted at all proaches to areas containing exces concentrations of airborne asbe fibers.

(ii) *Sign specifications.* The warn signs required by subdivision (i) of subparagraph shall conform to the quirements of 20" x 14" vertical for signs specified in § 1910.145(d)(4), to this subdivision. The signs shall play the following legend in the lo panel, with letter sizes and styles o visibility at least equal to that speci in this subdivision.

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Legend	Notation
Asbestos	1" Sans Serif, Gothic or Block.
Dust Hazard	¾" Sans Serif, Gothic or Block.
Avoid Breathing Dust	¼" Gothic.
Wear Assigned Protective Equipment.	¼" Gothic.
Do Not Remain In Area Unless Your Work Requires It.	¼" 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 Institute for Occupational Safety and Health, and to authorized representatives of either.

(2) *Employee access.* Every employee or 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.

§ 1910.93b Coal tar pitch volatiles; interpretation of term.

As used in § 1910.93 (Table G–1), coal tar pitch volatiles include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum, wood, and other organic matter.

(Sec. 8(g), 84 Stat. 1600, 29 U.S.C. 657) [37 FR 24749, Nov. 21, 1972]

§ 1910.93c 4-Nitrobiphenyl.

(a) *Scope and application.* (1) This section applies to any area in which 4-Nitrobiphenyl, Chemical Abstracts Service Registry Number 92933 is manufactured, processed, repackaged, released, handled, or stored, but shall not apply to trans-shipment in sealed containers, except for the labeling requirements under paragraphs (e) (2), (3), and (4) of this section.

(2) This section shall not apply to solid or liquid mixtures containing less than 0.1 percent by weight or volume of 4-Nitrobiphenyl.

(b) *Definitions.* For the purposes of this section: (1) "Absolute filter" is one capable of retaining 99.97 percent of a mono disperse aerosol of 0.3 μm particles.

(2) "Authorized employee" means an employee whose duties require him to be in the regulated area and who has been specifically assigned by the employer.

(3) "Clean change room" means a room where employees put on clean clothing and/or protective equipment in an environment free of 4-Nitrobiphenyl. The clean change room shall be contiguous to and have an entry from a shower room, when the shower room facilities are otherwise required in this section.

(4) "Closed system" means an operation involving 4-Nitrobiphenyl where containment prevents the release of 4-Nitrobiphenyl into regulated areas, nonregulated areas, or the external environment.

(5) "Decontamination" means the inactivation of 4-Nitrobiphenyl or its safe disposal.

(6) "Director" means the Director, National Institute for Occupational Safety and Health, or any person directed by him or the Secretary of Health, Education, and Welfare to act for the Director.

(7) "Disposal" means the safe removal of 4-Nitrobiphenyl from the work environment.

(8) "Emergency" means an unforeseen circumstance or set of circumstances resulting in the release of 4-Nitrobiphenyl

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