

DATE October 1976
SUBJECT Asbestos
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SECTION Dusts
REV: 0

ASBESTOS

For the purpose of this section, "asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite. "Asbestos fibers" means asbestos fibers longer than 5 micrometers. Asbestos is a generic term used to describe a number of naturally occurring, fibrous, hydrated mineral silicates that differ in chemical composition. These may be divided into two mineral groups: (1) Pyroxenes, which include chrysotile ($3\text{MgO} \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$), the type most widely used in U.S. industry; and (2) amphiboles, including amosite, Crocidolite, Tremolite, Anthophyllite, and actinolite. Asbestos fibers are generally characterized by high tensile strength, flexibility, heat and chemical resistance, and favorable frictional properties. Certain grades of asbestos can be carded, spun, and woven, while others can be laid and pressed to form paper, or used for structural reinforcement of materials such as cement, plastic, and asphalt. Chrysotile (white asbestos) is the fibrous form of the mineral serpentine. It is the most common variety of asbestos, widely distributed geographically, with the largest deposits being in Canada, Russia, and Rhodesia. It accounts for over 90% of world consumption. Nearly one million tons of asbestos are consumed in the United States annually. Approximately 92% of the asbestos used in construction is firmly bonded. Asbestos is not allowed in the Sherwin Plant BUT we do have exposure problems from old asbestos that was used prior to the promulgation of these standards.

SECTION I - Environmental (Workplace Air) ✓

(a) Concentration: Occupational exposure to asbestos shall be controlled so that no worker may be exposed to an 8-hour time-weighted average airborne concentration of asbestos fibers in excess of 0.5 fiber per cubic centimeter (or 5000,000 fibers per cubic meter) of air, as determined on the basis of a 40-hour work week and by other methods as noted in this section.

(b) Regulated areas: Any work area where an employee may be exposed to airborne concentrations of asbestos fibers in excess of either of the limits imposed as noted in this section shall be designated a regulated area. Only authorized persons may be allowed to enter such an area. A daily roster of all employees entering a regulated area shall be made and maintained.

(c) Monitoring: The purpose of all monitoring required by this paragraph is to measure accurately the airborne concentrations of asbestos fibers in a workplace to which employees would be exposed if they worked in the area without the use of personal protective equipment, such as respirators. Monitoring shall be performed in a manner reasonably calculated to satisfy this purpose. It may not be necessary to monitor every employee exposed to airborne concentrations of asbestos fibers in order to satisfy the purposes of this paragraph. For instance, the employee, or his working locations, likely to be exposed to the highest airborne concentrations of asbestos fibers in a work area may be deemed a representative of all the employees in the area. An employee in one shift may be deemed a representative of all employees in other shifts who, because they perform the same operation or are stationary in the same area, or for other relevant reasons, may reasonably be considered to have the same level of exposure as the representative employee shall be deemed to apply, and to indicate the exposure level of all employees represented.

(d) Initial: Every employer shall cause every place of employment where asbestos fibers may be released to be monitored in such a manner as to determine whether employees are exposed to concentrations of asbestos fibers in excess of the limits prescribed in paragraph (a) of this section. If this limit is exceeded, we shall immediately undertake a compliance program to lower the exposure limits as noted above (a).

(e) Frequency: If monitoring shows that an employee's exposure is above these limits, the monitoring shall be repeated every month. If monitoring shows that an employee's exposure is below these limits, the monitoring shall be repeated every three months. If two consecutive monitorings made at least 5 days, but not more than 3 months apart, show that an employee's exposure is below these limits, monitoring need not be repeated unless there is a change because of methods of production, process controls, or other

relevant factors, the employee shall be monitored as soon as practicable and thereafter.

SECTION II - Medical ✓

Medical surveillance shall be performed as outlined below for all employees at the Sherwin Plant occupationally exposed to Asbestos, including personnel periodically or occasionally exposed during routine or emergency operations. If an employee refuses a medical examination provided in accordance with this section, the employer shall inform the employee of the possible health consequences of such refusal, and shall obtain a signed statement from the employee stating that such employee has been informed of the consequences and refuses to be examined.

(a) **Preplacement:** The employer shall provide or make available to each of his employees, within 30 calendar days following his first employment in an area exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination. Such examinations shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 X 17 inches) a history to elicit symptoms of respiratory disease, pulmonary function tests to include forced vital capacity test (FVC) and forced expiratory volume at 1 second (FEV 1.0), and for employees with 10 or more years exposure to airborne concentrations of asbestos fibers or who are 45 years of age or older, a sputum cytology examination.

(b) **Annual:** Every employer shall provide or make available comprehensive medical examinations to each of his employees exposed to airborne concentrations of asbestos fibers at least annually. Such examination shall include, as a minimum, a chest roentgenogram (posterior-anterior 14 x 17 inches), a history to elicit symptoms of respiratory disease, pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV 1.0) and, for employees with 10 or more years of exposure to airborne concentrations of asbestos fibers or who are 45 years of age or older, a sputum cytology examination.

(c) **Termination of employment:** The employer shall provide or make available, within 30 calendar days before or after termination of employment of any employee exposed to airborne concentrations of asbestos fibers, a comprehensive medical examination. Such examination shall include as a minimum the same requirements as noted above in paragraphs (a) and (b).

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

(e) **Physician's written opinion:** With respect to each examination required by this section, the physician shall submit to the Company a written opinion on results of the examination and it shall contain the following information:

1. The physician's opinion as to whether the examined employee has any medical conditions which would place the employee at increased risk of material impairment of his or her health from exposure to asbestos fibers, or which would, directly or indirectly, be aggravated by such exposure.
 2. Any recommended limitations upon the employee's exposure to asbestos fibers, or upon the use of protective clothing and equipment, such as respirators; and
 3. A statement that the employee has been informed by the physician of any medical conditions which require further examination or treatment.
 4. The written opinion shall not reveal specific findings or diagnoses unrelated to occupational exposure to asbestos fibers.
 5. A copy of the written opinion shall be provided to the affected employee.
- (f) **Withdrawal from Exposure:** No employee shall be exposed to asbestos fibers in such a way as would put the employee at increased risk of material impairment of his or her health from such exposure. This determination may be based on the physician's written opinion.

SECTION III - Labeling and Posting ✓

- (a) Posting: Signs shall be provided and displayed at each regulated area. Signs shall be posted at such a distance from such an area that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.
- (b) Sign Specifications: The signs shall display the following legend, with letter sizes and styles of a visibility at least equal to the following:

Legend	Notation
Asbestos-----	1 inch san serif, gothic, or block.
Cancer hazard-----	3/4 inch sans serif, gothic, or block.
Avoid breathing dust-----	1/4 inch gothic.
Wear assigned protective equipment-----	Do.
Do not remain in area unless your work requires it-----	Do.

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

(c) Danger Labels: Labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to 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 reasonable foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in Section I will be released.

1. Specifications - labels shall be printed in letters of sufficient size and contrast as to be readily visible and legible. The label shall state:

DANGER
CANCER HAZARD
AVOID CREATING DUST

2. Prohibition of contrary statement. No statement may appear on or near any sign or label required by this section which would contradict or detract from the sign or label.

SECTION IV - Personal Protective Equipment: ✓ *James*

- (a) Respirators: You must wear a respirator whenever you are in an atmosphere where asbestos fiber concentrations exceed the permissible limits. Respirators can only be required for routine use you are in the process of installing controls, or in situations where these controls cannot feasibly reduce exposure levels to within permissible limits. If respirators are worn, they must be selected in accordance with standards outlined by the asbestos standard or approved by the National Institute for Occupational Safety and Health (NIOSH). If an employee experiences difficulty breathing while wearing a respirator, they will immediately notify their supervisor for referral to the plant physician.
- (b) Clothing: The purpose of wearing protective clothing is to prevent additional exposure which could result from asbestos dust from personal clothing and/or the body, becoming airborne. It is essential that contaminated clothing be removed and handled in such a way that the dust will not become airborne and inhaled.

SECTION V - Informing Employees of hazards from Asbestos

- (a) Employee observation or monitoring: Affected employees, or their representatives shall be given a reasonable opportunity to observe any monitoring required by this section.

Employees shall also have access to the records thereof.

SECTION VI - Work Practices and Sanitation - ✓

- (a) 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 this standard.
- (b) Spraying, demolition, or removal: Employees engaged in the spraying of asbestos, 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 standards as noted previously in Section IV.
- (c) Particular tools: All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits shall be provided with local exhaust ventilation systems if feasible.
- (d) 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 which exceed the ceiling levels.
- (c) Change rooms: At any fixed place of employment exposed to airborne concentrations of asbestos fibers in excess of the exposure limits, the employer shall provide change rooms.
- (d) 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 clothing from his work clothes.
- (e) 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 Section I of this standard.
 - 1. Whenever contaminated clothing is given to another person for laundering, such person or company shall be informed of the requirements in this section to effectively prevent the release of airborne asbestos fibers in excess of the standard.
 - 2. Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with Section III of this standard.

SECTION VII - Monitoring and Recordkeeping ✓

- (a) Method of measurement: All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400 450 X (magnification) (4 millimeter objective) with phase contrast illumination.
- (b) Personal monitoring: Samples shall be collected from within the breathing zone of the employees, on membrane filters 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. 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 Section I of this standard.
- (c) Access of employee to sampling records: Every employee and former employee shall have reasonable access to any record required to be maintained which indicates the employee's own exposure to asbestos fibers.
- (d) 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 Section I of this standard 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.

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ENVR.

Alumina

Total
Resp.

4% SiO_2

Bauxite

Total
Resp

Silica

Total
Resp

Resp. Filter PVC - FWS-B MSA

10 mm cyclone at 1.7 lpm

Total

Filter PVC

2.0 lpm in closed feed cassette