

MEASUREMENT AND CONTROL OF ASBESTOS DUST EXPOSURE

SAFETY ENGINEERING STANDARD

ISSUED	APRIL 1973
THIS PAGE REVISED	OCT 1985
STANDARD REAFFIRMED	NOV 1984

S 4 T

Page 1 of 8

S4T, pt

This standard includes requirements of the Occupational Safety and Health Act of 1970 (OSHA) as published in the Federal Register. OSHA information is printed in red.

1. SCOPE

1.1 This standard presents the permissible asbestos dust exposure limits, methods of controlling asbestos dust exposures, special OSHA requirements for removal of asbestos insulation, respiratory protective equipment, and method of sampling asbestos dust concentrations in the work areas. It provides sufficient information to comply with OSHA and EPA regulations but guidance from the Du Pont Legal Dept (via the Departmental OSH Coordinator) should be sought whenever an interpretive problem arises.

1.2 An Asbestos Compliance Package can be obtained from the Occupational Health and Water Treatment group of ESD. Ref (1) contains extensive additional information.

1.3 A comprehensive book on asbestos control has been published, Ref (14). It contains detailed information on asbestos removal techniques, monitoring, and disposal checklists for removal jobs and for contractors. The removal technique is called "negative air filtration" and a portable, HEPA equipped powered extraction technique is also explained in an Environmental Agency report that has been reprinted under "Controlling Asbestos Contamination with Negative Filtration Systems," Ref (15). The report contains a detailed operating procedure for asbestos removal and an evaluation form that would be useful in auditing the removal job. It also contains much of the same information in the more expensive book identified as Ref (14).

2. GENERAL

2.1 Asbestosis and cancer are associated with over-exposure to asbestos. Historically, the incidence of these diseases has been significantly higher among asbestos workers than among the general population. Cigarette smoking greatly increases the incidence of respiratory cancers arising from exposure to asbestos. Asbestos-exposed persons who smoke have a 53-fold increase in risk from lung cancer over nonsmokers, Ref (2).

2.2 Principal potential sources of exposure to airborne asbestos dust in Company operations are:

a. Removing old asbestos-containing insulation from lines and vessels, including gaskets on high-temperature lines

b. Removing, handling, and laundering of asbestos-contaminated clothing

c. Cutting new or removing weathered asbestos cement (Transite) siding, roofing, pipe, etc, or Havel pipe and equipment

d. Maintenance and operation of machinery and vehicle brake linings

e. Opening boxes and removing new asbestos materials

f. Handling asbestos materials used in production of Company products

g. Repair of laboratory equipment with asbestos-lated heaters, e.g., gas chromatographs, lab ovens

h. Cleaning and maintenance of vacuum systems of asbestos fibers

i. Laid blankets and cloths

j. Asbestos floor tile and adhesive

k. Materials should be used that never contain asbestos. Release of asbestos on asbestos

2.4 e.g., Transite, asbestos gaskets, impregnated asbestos back (mastic). These materials become hazardous if asbestos fibers are released. Cause of loss of binder or a physical action such as grinding. Supervision should inspect use of these materials to determine if respirators are needed.

2.5 A material which contains asbestos which might become airborne should be treated as asbestos unless it is determined that the asbestos present is not a potential health hazard. Talc, vermiculite, and other minerals are listed by Appendix 1 of Ref (1) as possibly containing asbestos.

Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority initiating the use of this standard.

SUBCOMMITTEE NO. 40



NOTE - THIS DOCUMENT IS THE PROPERTY OF E. I. DU PONT DE NEMOURS AND COMPANY. THE TECHNICAL INFORMATION HEREIN MAY NOT BE USED NOR REPRODUCED WITHOUT THE PERMISSION OF DU PONT.

DUP 0838558

PLAINTIFF'S
EXHIBIT
DUP-537

3. EXPOSURE LIMITS

3.1 Amosite, chrysotile, and tremolite asbestos fibers concentrations in air shall not exceed an 8-hour (and 12-hour) Acceptable Exposure Limit (AEL) of 0.5 fibers longer than 5 micrometers per cm^3 .

3.2 The types of asbestos occurring in Du Pont are amosite, chrysotile, and tremolite, a potential contaminant in talc.

3.3 Since crocidolite asbestos is not known to be present in Du Pont, its toxicity was not considered in setting the AEL. (Use the ACGIH TLV 8-hour TWA of 0.2 fibers longer than 5 micrometers per cm^3 .) If encountered in Du Pont, Haskell Laboratory should be contacted.

3.4 At no time may exposure to airborne fibers concentration exceed a ceiling of 10 fibers longer than 5 micrometers per cm^3 .

4. CONTROL OF ASBESTOS DUSTS

4.1 Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust collection shall be used to meet the exposure limits in section 3.

4.1.1 Local exhaust ventilation and dust collection systems shall be in accordance with ANSI Z9.2-1971, "Fundamental Governing the Design and Operation of Local Exhaust Systems."

4.1.2 Additional information on the design of ventilation systems is contained in H1U, H3U, DH1U, DG20D, and Ref (1) and (6).

4.2 Handling Asbestos

4.2.1 Insofar as practical, asbestos-containing materials 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 in section 3.

4.2.2 Housekeeping. All external surfaces shall be maintained free of asbestos fibers if, with their dispersion, there would be an excessive concentration.

a. All areas where asbestos is routinely handled shall have a vacuum cleanup system. This can be a system of hoses connected to a central vacuum system designed in accordance with 4.1.1. Vacuum hoses should be inspected periodically to ensure they are free of loose asbestos fibers. These hoses should be appropriately isolated, i.e., placed in a sealed, labeled bag.

b. No dry sweeping shall be performed. Compressed air is not to be used for cleanup.

Portions printed in red meet OSHA regulations, Section 1910.1001 (formerly 93a).

4.2.3 Caution signs and labels shall be used per section 12.

4.2.4 No asbestos cement, mortar, etc. or similar material containing dry friable asbestos fibers shall be removed from bags, cartons, or other containers in which they are shipped without being either wetted, enclosed, or ventilated to effectively prevent the release of asbestos fibers in excess of the limits in section 3.

4.3 Tools Used on Asbestos

4.3.1 Avoid sawing where possible; knife cutting is preferred.

4.3.2 All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of exposure limits, i.e., saws, scores, abrasive wheels, and drills, shall be provided with a dust-collection system as specified in 4.1.

4.3.3 All asbestos-cutting operations should be isolated to minimize unauthorized access. This can be a temporary area for nonroutine operations with barricades and signs per section 12. Routine work should be isolated in a properly posted separate work area.

4.4 Removal of Asbestos Insulation

4.4.1 If the composition of the material is unknown, it shall be treated as being asbestos. For use of labels to identify nonasbestos insulation, see SN218P.

4.4.2 Proper respirators (per section 5) and special protective clothing (per section 9) shall be provided all employees engaged in removal or demolition of asbestos insulation or covering. Atmosphere supplying respirators are required except where it has clearly been demonstrated that the wet method is effective and monitoring has shown that airborne concentrations of asbestos on the job will not exceed the OSHA protection factor of the air purifying respirator. Respirator selection information is provided in section 5.

4.4.2.1 At a minimum, air-purifying respirators (5.3) and special clothing shall be worn during the removal of asbestos insulation. Many plants have found disposable dust masks (5.3.1) (NIOSH approved for asbestos) and disposable paper clothing satisfactory (5.3.2).

a. This requirement does not apply to removal of insulation, fabricated and protected to withstand repeated removal and reinstallation for equipment maintenance or other reasons, providing the techniques employed have been demonstrated to maintain asbestos concentrations within exposure limits of section 3.

S4T, p2

DUP 0838559

