FILE NAME: DuPont Remington (DRM)

DATE: 1973 Feb 13

DOC#: DRM008

DOCUMENT DESCRIPTION: Memo from DuPont RE OSHA Standard S4T - Measurement and Control of Asbestos Dust Exposure, with Comments from the Engineering Standards Committee

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED

WILMINGTON, DELAWARE 19898

ENGINEERING DEPARTMENT
LOUVIERS BUILDING

cc: D.G.Windsor-Emp.Rel.-Wilm.
Subcommittee Members

J. D. Anthony - ERD
H. A. Heidelberger - Design

Refer to Serial Letter 4013
Dated September 11, 1972 (Second Revie

February 13, 1973

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STANDARDS SECTION - SAFETY & FIRE PROTECTION SUBCOMMITTEE
S4T - ASBESTOS DUST EXPOSURE, MEASUREMENT AND CONTROL

This standard was approved without comments by the following departments: Construction, ESD, Photo Products, Pigments, and Purchasing. In addition, the following comments have been received from the Engineering Standards Committee. These have been reviewed by the subcommittee, with replies as shown below.

R. D. CARLTON, COMMENTS BY J. B. YOUNG - BIOCHEMICALS - BELLE PLANT
COMMENT NO. 1 - 3.4.2 - This section specifies that supplied-air or self-contained respirators shall be worn by employees engaged in dismantling asbestos insulation. This assumes that permissible TWA exposure limits are automatically exceeded on all dismantling operations and hence, respiratory protective devices are automatically necessary. We believe Section 3.4.2 should be amended to specify that respirator protection shall be worn on asbestos insulation dismantling operations anytime the asbestos dust concentration cannot be controlled below permissible TWA exposure ceiling limits by dampening with water or other suitable means.

REPLY - We cannot agree that 3.4.2 should be changed at this time to call for atmosphere supplying respirator protection on asbestos insulation dismantling and spraying only when required by the dust concentration level. This standard assumes that the limits will be exceeded whenever these operations are performed. On small jobs or under favorable, controlled conditions, this may not be true as several comments have indicated. Therefore, the subcommittee will welcome test data supporting less restrictive procedures for future consideration.

DUP 1014340

J08703

COMMENT NO. 2 - 4.2 - This section is not very clear. What does "--and be required to do so---" refer to? Some amplification appears in order for clarity.

REPLY - This sentence was taken directly from OSHA. We believe it referred to testing the respiratory device for proper fit and we will clarify. Also, see reply to Comment 50.

COMMENT NO. 3 - 6.4 - Is there sound justification for including an unexposed filter for analysis along with each completed sample? This doubles sample analysis costs and further loads up analysis technicians resulting in even slower return of analysis results.

REPLY - Including an unexposed filter for analysis along with completed samples was part of the sampling procedure recommended in the NIOSH criteria document on asbestos. Also, it was recommended by one of the laboratories doing this analysis. This was to ensure a proper base for counting the exposed sample. The recommendation was not made a part of the final OSHA regulations and we will revise the standard to make it a recommendation only. It was not intended that each exposed filter would require an unexposed sample, but rather, each batch of samples. We will clarify this point also.

H. B. EATON, COMMENTS BY S. E. WENZEL - ELASCHEM - LOUISVILLE

COMMENT NO. 4 - Table of Typical Dust Concentrations. Most asbestos insulation installed by plant forces in maintenance and small projects is done in the field in pipe alleys and open buildings. Dust sampling is not practical in these instances because of delay to get results and we do not want to compel the use of extreme protective measures if unnecessary. Could you include a typical table of dust concentrations that could be used for guidance for selecting appropriate control measures.

REPLY - We appreciate the difficulties resulting from the time required to get test results, and agree a Table of Typical Dust Concentrations would be very helpful. However, OSHA regulations call for exposure data to be developed for each site. When more information is available, it may be possible to add general conclusions to the standard that would be helpful as qualitative guides for all sites.

COMMENT NO. 5 - Clarification of "removal" and "dismantling" paragraphs 3.4.1 and 3.4.2. The OSHA states insulation should be removed in a "wet state sufficient to prevent the emission of airborne fibers of the exposure limits prescribed in paragraph (b) unless the usefulness of the product would be diminished thereby". If this can be done, it would appear 3.4.2 could be accomplished without the atmosphere supplying respirators providing the insuuation was wetted and collected in impermeable containers. Please expand and clarify on your instructions in 3.4.1 and 3.4.2.

REPLY - See reply to Comment 1.

DUP 1014341

J08704

J. C. BRECKENRIDGE, COMMENT BY D. G. WINDSOR - EMP. REL. - WILMINGTON
COMMENT NO. 6 - Approved with inclusion of information mentioned in J. S. Queener's letter to Departmental OSHA Coordinators (10/12) and information from Haskell Lab which has been forwarded to the subcommittee.

REPLY - This information will be included in accordance with our discussions and agreement following your comment.

R. F. STEWART, COMMENT BY M. L. PURTELL - DESIGN - LOUVIERS
COMMENT NO. 7 - It should be mentioned that workers, involved in other crafts other than those actively involved in removing insulation can be exposed to asbestos and must wear protective equipment.

REPLY - This is considered implicit in the standard and we do not believe it needs to be carried further. As written, the standard applies to any personnel exposed to asbestos dust, not to "those actively involved in removing insulation".

H. H. KOHL, COMMENTS BY R. D. MANNON - F & F - FLINT PLANT
COMMENT NO. 8 - At the Flint F & F Plant, asbestos fibers, delivered in 50-lb bags are used in making a Company product. This proposed standard includes no requirement for handling bagged asbestos fibers or disposing of empty, dusty bags.

REPLY - Standard applies to the handling of asbestos in any form. However, we agree more should be included on handling bagged asbestos, waste, and empty bag disposal. We will add.

COMMENT NO. 9 - The new OSHA standard requires that asbestos debris be removed in closed containers or plastic bags. Empty, dusty bags might well be classified as debris, since they do cause a dust problem. Our new engineering standard should include recommendations to cover this, and be consistent with the OSHA standard.

REPLY - We agree and will add as discussed in reply to Comment 8.

H. H. KOHL, COMMENTS BY A. J. GEIB - F & F - WILMINGTON
COMMENT NO. 10 - Waste Disposal - Suggest information be included on the requirements for waste disposal of asbestos or asbestos containers (bags, etc.) in sealed impermeable bags, or suitable containers to avoid release of fibers during disposal.

REPLY - We agree. See reply to Comment 8.

COMMENT NO. 11 - 3.1 - Since calcium silicate contains 10%-20% asbestos and represents a common type of insulation in use, it is suggested the standard call attention to this fact and include appropriate information. Other materials, as for example talc, contain a percentage of asbestos fibers. Thus, including a word of caution to review all materials for asbestos fiber may be desirable.

DUP 1014342

REPLY - We will call attention to this. Sampling will be required to determine the extent of the exposure. (Incidentally, fibrous talc is now under the same restrictions as asbestos. See Federal Register, p. 22142, October 18, 1972.)

COMMENT NO. 12 - 3.4.2 - Dismantling (removal) of small sections of insulation as frequently encountered by maintenance personnel in making minor repairs to equipment or lines would not be expected to exceed 10 times TWA. Provision should be made for exception where it can be shown the exposure levels do not require this degree of protection, i.e., atmosphere supplying respirators.

REPLY - See reply to Comment 1.

COMMENT NO. 13 - Paragraph 4 - Should include preface that "Compliance with the exposure limits may not be achieved by the use of respirators and their use is acceptable only during the time period necessary to install engineering controls and institute work practice necessary to reduce levels below the limits prescribed in 2.3".

REPLY - We agree to your proposed change but believe it should be incorporated in Section 2.

COMMENT NO. 14 - 5.2 - Believe there is a danger from over simplification of the law since all details are not included in the standard. As for example, no reference is made to medical examinations. Suggest adding a caution statement that when these conditions exist (exceeding limits of paragraph 2.3) the law should be consulted for full details on the requirements. Same for 6.5 and 6.6. Suggest combining paragraphs 5.2, 6.5, and 6.6 into one section to avoid repetition of caution statement.

REPLY - These suggestions will be carefully considered. The manner in which medical examinations are to be mentioned is being developed by Haskell Laboratory and Employee Relations Department.

COMMENT NO. 15 - 6.1 - Suggest clarify 6.1 with the following: Where employees are exposed to asbestos fibers monitoring is required to determine whether an employee's exposure is below the limits prescribed in 2.3. The law states "Sampling frequency and patterns. After the initial determinations required by subparagraph (1) of this paragraph (similar to paragraph 6.1), 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 foresee: to exceed the limits prescribed by paragraph (b), same as paragraph 2.3, of this section".

This is interpreted to mean that after it can be established the exposure can reasonably be foreseen not to exceed the limits, no further

DUP 1014343

J08706

monitoring is required if conditions remain unchanged. It is estimated adequate controls can generally be established to eliminate exposure above the limits and probably is more typical of most Du Pont situations. Additional instructions on monitoring, therefore, are suggested for situations where limits are not exceeded to cover recommended practices for personnel and environmental monitoring, employee observation and record keeping which will satisfy the legal requirements.

REPLY - We will review and clarify.

COMMENT NO. 16 - 6.3 - The procedure refers only to personnel monitoring whereas samples collected from the areas of a work environment which are representative of the airborne concentrations of asbestos fibers which may reach the breathing zone of employees may be a more convenient means of demonstrating compliance where maximum levels are below the prescribed limits. Suggest adding note that ambient monitoring may be employed where appropriate.

REPLY - This also will be reviewed to clarify the areas of personal and ambient (environmental) monotoring.

W. H. MC COY, COMMENT BY O. J. MEYER - INDUSTRIAL CHEMICALS - EAST CHICAGO
COMMENT NO. 17 - 2.3 - I don't think we can measure this.

REPLY - We presume the difficulties you are referring to are similar to those expressed in Comment 4. We agree proof of compliance will not be easy.

W. H. MC COY, COMMENT BY W. HENSLEY - INDUSTRIAL CHEMICALS - EAST CHICAGO
COMMENT NO. 18 - 2.2 - Reference to "insulation" should be "asbestos insulations" or "insulations containing asbestos" to avoid people thinking these guidelines are for asbestos-free insulation (i.e., Super Cal Temp, K-Fac, etc.)

REPLY - We will clarify as you have suggested.

R. H. GRUSS, COMMENT BY C. F. GUCK - REMINGTON ARMS - BRIDGEPORT WORKS
COMMENT NO. 19 - Section 5.1 - How do you plan to "sterilize" a mask?

REPLY - With a suitable sterilizing solution, we will review further to clarify if possible.

J. V. FLYNN, COMMENT BY A. J. MAJOR - ORCHEM - CHAMBERS WORKS
COMMENT NO. 20 - 2.4 - Control Methods, etc.: It is not clear to me if these control methods (Section 3) are required if permissible exposure limits are otherwise met.

REPLY - Some of the control methods are OSHA regulations and will be printed in red when standard is published. The others are recommended as good practice to help minimize the dust concentration. In handling asbestos without control methods, the limits probably will not be met.

DUP 1014344

J08707

J. V. FLYNN, COMMENTS BY A. L. LINCH - ORCHEM - CHAMBERS WORKS
COMMENT NO. 21 - 6.3.5 - Either delete the word "approximately" in Line 1 or change "check" in Line 2 to "record", otherwise control of precision in sampling cannot be attained. The usual volumetric precision limits (95% confidence limits) is ± 10%.

REPLY - We will revise accordingly.

COMMENT NO. 22 - 6.3.6 - Stoppers furnished with the filter units must be replaced before sealing.

REPLY - We will revise accordingly.

COMMENT NO. 23 - Section 6.4 - Lines 4, 5, and 6 - This control filter must not be opened to the atmosphere. Delete "which has been handled....it".

REPLY - We will revise accordingly.

J. V. FLYNN, COMMENTS BY J. C. WARNER - ORCHEM - CHAMBERS WORKS
COMMENT NO. 24 - 6.2.1 and 6.2.2 - Recommend showing Du Pont Company as preferred supplier. Our experience indicates Du Pont is cheaper and faster. Our order MD-997209 on IPCO showed their price $265 and delivery two months. Order was changed to E. I. du Pont de Nemours and Company, Explosive Products Division, Industrial Products Section. Price was $247 and items were received in four days. Attached is copy of Du Pont ad on this.

REPLY - We will add and indicate as you suggest.

J. A. SIGMAN, COMMENTS BY J. M. MARTIN - TEXTILE FIBERS - CHATTANOOGA
COMMENT NO. 25 - 3.2.3 - Reword third sentence as follows: "All parts of the room must have vacuum cleanup on a frequency which prevents accumulation of dust on ledges, shelves, floors, and machines".

REPLY - This change will be made.

COMMENT NO. 26 - 3.6.2 - Reword to allow discharge into a cyclone separator and empty hopper into a plastic bag. "Discharge should be into a cyclone separator or into bag filters which meet the following criteria:"

REPLY - This change also is accepted.

J. A. SIGMAN, COMMENTS BY B. R. BOLTON - TEXTILE FIBERS - MARTINSVILLE
COMMENT NO. 27 - 3.2.2 - Major power-cutting machines are located in main shops with ventilation and exhaust facilities attached. See no need for isolation.

REPLY - Equipment location per 3.2.2 is preferred for better control. However, wording is not mandatory.

COMMENT NO. 28 - 3.6.2 - Improved dust collection system scheduled for installation first quarter of 1973.

REPLY - Thank you for your comment.

COMMENT NO. 29 - 5.2 - Have no plans to comply, will look at ways to vacuum employees off.

REPLY - Thank you for your comment.

J. A. SIGMAN, COMMENTS BY C. M. GARDNER, JR. - TEXTILE FIBERS - SEAFORD
COMMENT NO. 30 - 2.2.d - Mixing loose asbestos to form cement.

REPLY - Will add "loose" as suggested.

COMMENT NO. 31 - Respiratory Equipment. Suggest including approved respirator suppliers complete with model numbers.

REPLY - Reference to Bureau of Mines should suffice since models and prices change. Suppliers are listed in S2H, which is referenced.

COMMENT NO. 32 - 5.1 - No mention of notifying laundry.

REPLY - This will be clarified.

J.A.SIGMAN, COMMENTS BY J.M.COLEMAN-W.J.VENABLE-TEX.FIB.-SPRUANCE PLANT
COMMENT NO. 33 - (Comments 33-39 are listed with proposal as written and comment indented.). 3.4.1 - "Insulation to be removed and discarded should be dampened prior to and during removal whenever possible".

> Suggest consideration for rewording with reference to "prior to" as a glazed or painted exterior surface will not absorb moisture. Agree with dampening.

REPLY - We prefer to leave this as worded. Each situation can be different. The object is to reduce dust by moisture whenever possible. Thank you for your comment.

COMMENT NO. 34 - 5.1 - "Respirators and masks must be kept clean and sterilized prior to reissue."

> Suggest consideration for expanding to allow the issuance of respiratory equipment to individuals, to be kept and maintained by them as personal protective items.

REPLY - Believe there are many possibilities in expanding 5.1. We will consider generalizing further.

COMMENT NO. 35 - "Millipore No. MAWP-037-AO filter, white, nongridded. 0.8 micron pore, Millipore Corporation, Bedford, Mass., 01730."

DUP 1014346

J08709

Suggest consideration be given to allow use of No. MAWG-037-AO filters (gridded) by those who may have a current, plentiful supply on hand.

REPLY - Either gridded or nongridded filters can be used. We understand nongridded are preferred by the laboratories.

COMMENT NO. 36 - 6.3.2 - "Clip filter holder to lapel or shirt pocket as close as possible to the person's mouth. This method of personnel sampling is preferred."

Suggest consideration be given to changing wording from "mouth" to "breathing zone".

REPLY - We will change as suggested.

COMMENT NO. 37 - 6.3.5 - "Turn on pump and set at approximately two (2) liters per minute rate. Check rate periodically. When finished sampling, turn off pump, and record elapsed sampling time. Sampling record forms, EN-2731 (see Figure 3) are available from Stationery Stores, Engg. Dept., Wilmington, Delaware."

Suggest consideration be given for use of an inline orifice (screwed into filter adapter) which meters air flow automatically, and removes chance of error in setting flow manually, These adapters are available from Millipore Corporation.

REPLY - Orifice use is optional. A periodic check of rate still is desired when using an orifice. The latter will not help if the battery goes down.

COMMENT NO. 38 - 6.4 - "Analysis. Completed samples (exposed filters) are placed in a mailing tube, sealed and sent to a qualified laboratory with two copies of the sampling record. Include an unexposed filter with the sample which has been handled in the same fashion without drawing air through it. Qualified laboratory information is available from Haskell Laboratory".

Suggest consideration be given to clarify whether one (1) unexposed filter is required for each sample, or one (1) unexposed filter is required for each lot of exposed filters, which may be as many as six (6), or eight (8) in the same mailing tube. Also suggest each exposed sample be put in a plastic envelope before placing in the mailing tube.

REPLY - OSHA is not clear on this either, but one background for several exposed filters should suffice. See reply to Comment 3. As to use of plastic envelopes, etc., the detailed sampling procedures are considered beyond the scope of this standard. Equipment vendors instructions and Haskell Lab should be consulted here.

COMMENT NO. 39 - Typical Sampling Record Form EN-2731

> Suggest consideration be given as to definite value of recording "Weather-Temperature-Relative Humidity". Requirement of this may necessitate additional equipment, and forms, when samples are taken at several Plant sites simultaneously, where temperature and relative humidity conditions vary greatly.

REPLY - Figure 3 is a typical sampling record form and should be modified to suit local considions. However, we would expect most sites would want to have this information for studying and comparing results.

J. A. SIGMAN, COMMENTS BY W. O. COTTY - TEXTILE FIBERS - MAY PLANT

COMMENT NO. 40 - 2.8 - Add at start "When approved substitute materials are available, ..."

REPLY - We will review and revise.

COMMENT NO. 41 - 3.1 - This whole section should be reworked to be equally applicable to pipe or block insulation.

REPLY - We agree and will revise.

COMMENT NO. 42 - 3.12 - Some question as to whether vacuuming is a "must" for every carton. Suggest that this be revised along the lines of "Cartons of new insulation should be checked after opening and prior to removal of insulation as to the need for vacuuming to remove dust".

REPLY - We will review and revise.

COMMENT NO. 43 - 3.22 - Very questionable as to practicality and/or need. If 3.2.1 is followed anyway, why this extra and impractical requirement in all cases?

REPLY - This is not included as a "requirement in all cases". The words used are "should be isolated". The practicality must be determined for each case. Also, see reply to Comment 27.

COMMENT NO. 44 - 3.2.3 - Add new sentence "Facilities must be per ANSI Z9.2 - 1971".

REPLY - ANSI Z9.2 refers to the ventilation system. 3.2.3 refers to a vacuum cleanup system. The two need not and probably would not be the same system.

COMMENT NO. 45 - 3.3.1 - Add "closed" before last word (containers).

REPLY - We will revise.

COMMENT NO. 46 - 3.4.2 - Delete,-covered in 4.1.1 (after rewrite). Also, the statement as written is not qualified, as is done in 4.1.1.

REPLY - We believe the repetition is advantageous in this case since it is an arbitrary OSHA ruling.

DUP 1014348

J08711

COMMENT NO. 47 - 3.4.3 - Rewrite same as the law, "Scrap insulation shall be collected and disposed of in sealed impermeable bags, or other closed impermeable containers".

REPLY - We will revise. See also replies to Comments 8 and 9.

COMMENT NO. 48 - 4.1.1 - (a) remove the word "or", and (b) correct the last sentence after "when" to read "when the ceiling or the 8-hour TWA are reasonably expected to exceed 100 times the permissible exposure limits" (see 2.3).

REPLY - (a) The "or" is needed here. (b) We will rephrase the last sentence as you suggest.

COMMENT NO. 49 - 4.1.2 - Rework the enclosed part to read the same as the OSHA law, or "Shall be used when the ceiling or the 8-hour TWA are reasonably expected to exceed 10 times the permissible exposure limits" (see 2.3).

REPLY - We will review the wording for clarity. (However, the OSHA requirement is for: 1 to 10 times the TWA, and not: in excess of 10)

COMMENT NO. 50 - 4.2 - Reword at start to read "Those employees who use respirators shall be instructed...".

REPLY - We will add a phrase in 4.2, "Each employee who may use respirators." Also see reply to Comment 2.

COMMENT NO. 51 - 4.3 - New - "Respiratory equipment practices shall be in accordance with ANSI Z88.2 - 1969, Practices for Respiratory Protection".

REPLY - We will add.

COMMENT NO. 52 - 5.3 - Add at end "where asbestos is being handled or fabricated".

REPLY - We will add.

COMMENT NO. 53 - 6.2 - The CAUTION notice seems to be out of order for the Model C115 Bendix Corporation unit, as this model is approved by the U.S. Bureau of Mines for intrinsically safe for use in explosive atmospheres under approval No. 2G-2490.

REPLY - 6.2 will be revised to read: "CAUTION: Unless specifically approved for use in hazardous atmospheres, air samplers shall not be used in hazardous areas as defined in DEID without a permit to use a spark-producing device."

COMMENT NO. 54 - 6.4 - The unexposed filter inclusion doubles the lab cost, and without reason. The plan was up for discussion, but was not included in the final approved issue.

REPLY - See reply to Comment 3.

DUP 1014349

J08712

COMMENT NO. 55 - 6.5 - Correct to show that "medical examination records shall be retained by employees for at least twenty (20) years".

REPLY - By agreement, the medical requirements will be handled through the Medical Division. This standard will contain a reference only. Also, see reply to Comment 14.

COMMENT NO. 56 - 6.6 (a) Change WARNING to read CAUTION and (b) reword and rephrase to conform with the two different signs for Shop and Barricaded Areas as described in letter R. B. Hayden to Plant Managers 9/28/72.

REPLY - (a) We will use "CAUTION". (b) We have requested R. B. Hayden's letter and will review.

J. A. SIGMAN, COMMENT BY P. F. PHILYAW - TEX. FIB. - WAYNESBORO PLANT

COMMENT NO. 57 - We feel that the Waynesboro Plant has an effective asbestos dust control program. Allowable exposure limits have been met and further reductions in dust exposure are being made to comply with future allowable limits. Cost of compliance to date has been negligible. Cost of planned future improvements will be minimal.

The proposed S4T will require significant and costly steps to be taken even though limits are being met through the use of other methods. We are also concerned that compliance with S4T as presently written will have undesirable ramifications in regards to exposure to other chemicals and dusts. This standard should not be implemented until Engineering Superintendents at all plants have had the opportunity to meet and discuss it in detail.

REPLY - Thank you for your comments. Implications are being carefully evaluated. While there may be other ways to assure employee protection against asbestos exposure, this standard represents an acceptable approach and also meets OSHA regulations.

COMMENT NO. 58 - 3.2.1 - Eliminate the word "may".

REPLY - We prefer to retain "may". This was taken directly from OSHA.

COMMENT NO. 59 - 3.2.3 - Add "If other dust control methods do not reduce exposure levels required in Section 2.3".

REPLY - "Should" is not mandatory. Each situation can be decided on its merits.

COMMENT NO. 60 - 3.4.2 - Add "If exposure levels specified in Section 2.3 are exceeded".

REPLY - See reply to Comment 1.

DUP 1014350

J08713

COMMENT NO. 61 - 3.6.2-h - Add "Dust samples shall be taken every 6 months at the dust collector discharge to assure satisfactory performance of the system. Dust level at the discharge point shall not exceed limits described in Section 2.3".

REPLY - We will add item as you suggest. However, the sampling frequency will vary for different situations. We would prefer to say, "Periodically as needed to assure satisfactory....."

COMMENT NO. 62 - 5.2 - Change the first sentence to read, "Special clothing, a change room, and duplicate lockers must be provided for employees exposed to concentrations which routinely exceed the ceiling limit of 2.3".

REPLY - Your addition of the word "routinely" does not clarify the sentence, is not included in the OSHA wording related to this, and we believe should be omitted.

COMMENT NO. 63 - 5.3 - Add "Where dust levels normally exceed the limits specified in Section 2.3".

REPLY - We will clarify, but prefer the wording in Comment 52.

COMMENT NO. 64 - 6.6 - Change the first sentence to read, "Warning signs conforming to Figure 1 shall be posted at all approaches to areas where asbestos concentrations routinely exceed permissible exposure limits at a sufficient distance to permit an employee to read the signs and take necessary precautions before entering the area".

REPLY - Again, we did not add the word "routinely" for reasons discussed in reply to Comment 62.

J. A. SIGMAN, COMMENTS BY H. G. WADDELL - TEXTILE FIBERS - CAPE FEAR
COMMENT NO. 65 - Add a Figure 3 sign similar to attached drawing. Sign to be used along the perimeter of a barricaded area.

REPLY - We prefer to stay with Figure 1 for the present, which shows minimum OSHA requirements for "caution" signs.

COMMENT NO. 66 - Add medical responsibilities for examinations and record keeping similar to Standard J2C (Hearing Conservation).

REPLY - Medical responsibilities will be handled separately. See replies to Comments 14 and 55.

COMMENT NO. 67 - Do not provide in-Company counting capability. A contract with a testing laboratory would be adequate.

REPLY - Thank you for the comment. However, responsbiility for determining counting capability rests with the Employee Relations Department. This decision is separate from the development of this standard.

DUP 1014351

COMMENT NO. 68 - Are we properly covered on "wetting down" as related to OSHA 1910.93a in handling, disposing of, etc.?

REPLY - We believe we are as much as possible. See reply to Comment 33.

COMMENT NO. 69 - Item 3.1.3 should be incorporated into 3.1.1.

REPLY - We are deleting 3.1.3.

COMMENT NO. 70 - OSHA Regulation 1910.93a references two types of sampling - personnel and environmental. Du Pont standard should specify whether either or both are required.

REPLY - Both are required; standard will be clarified.

COMMENT NO. 71 - Clarify 6.2 through 6.3.6 between personnel sampling and environmental sampling.

REPLY - We will clarify.

J. A. SIGMAN, COMMENTS BY G. B. KIRKPATRICK - TEX. FIB. - OLD HICKORY

COMMENT NO. 72 - 6.4 - What is the reason to "include an unexposed filter with the sample which has been handled in the same fashion without drawing air through it"? At Old Hickory, all cartridges are kept in the box, sealed, until ready to use. If this unexposed filter is going to be analyzed also, this will double our cost. This could amount to a large amount of money at Old Hickory, since we strive to take at least five samples a week.

REPLY - See reply to Comment 3.

J. A. SIGMAN, COMMENTS BY L.L.THOMPSON/E.G.GERMOND-TEX.FIB.-CHESTNUT RUN

COMMENT NO. 73 - 3.4.2 - Reference note should be added as follows: "--- supplying respirators see paragraph 4.1.1 or paragraph 4.1.2 if the concentration of fibers is low enough."

REPLY - See reply to Comment 1.

COMMENT NO. 74 - 3.6 - Exhaust ventilation ---etc. Suggest addition of paragraph 3.6.3 to list approved vacuum cleaners with manufacturers names and where they can be purchased. Also to include source of supply of dust bags that will satisfy this standard.

REPLY - The subcommittee recommends this be developed locally to start. After background experience is obtained, this data can be added to the standard.

DUP 1014352

J08715

COMMENT NO. 75 - 5.2 - The use of the figures 2.3 is misleading. Suggest something like: "---exceed the ceiling limit (10 fibers) specified in paragraph 2.3. This is to prevent-----"

REPLY - The reference to paragraph 2.3 eliminates the restatement of the TWA and ceiling limits a number of times. We believe that the number of repetitions avoided in this case justifies the use of the reference.

COMMENT NO. 76 - 5.3 - Since lung cancer is considerably more prevalent in people who smoke on the job while working with asbestos, it is suggested that NO SMOKING be included in this paragraph.

REPLY - While there is some evidence that the effects of asbestos exposure and smoking are synergistic, this relationship is beyond the scope of this standard.

R. E. ROBBINS, COMMENTS BY A. R. SASSAMAN - CENT. RES. - WILMINGTON

COMMENT NO. 77 - Alter 2.8 to read: In all cases where suitable substitute materials are obtainable, the installation of asbestos should be avoided. Even if installation can be made without exceeding hazard thresholds, these may be reached later on when maintenance or removal is required. See Engineering Standard SN100M and SN500M for possible substitutes.

REPLY - We believe changes to 2.8 as proposed in reply to Comment 40 will cover your suggestion adequately. Although personnel involved in insulation will know, we will add to 2.8, "For asbestos insulation substitutes, see the SN-M standard series, which cover approved insulation materials".

COMMENT NO. 78 - Alter 3.2.3 to read: The work area shall have vacuum cleanup devices specially equipped with a filter system capable of capturing a particle size of 0.5 micron. This can be either a system of hoses connected to a central dust collector, or a portable small volume vacuum device.

REPLY - We will review experience and alter 3.2.3 accordingly. To be effective, any vacuum cleanup system must remove particles 5.0 microns and larger. The need for removal down to 0.5 microns will be investigated.

COMMENT NO. 79 - Add 3.4.4 - In some cases, large sections of insulated piping committed to demolition can be wrapped in plastic sheeting and sealed prior to dismantlement for containing asbestos dust.

REPLY - We believe a number of unusual ways of containing asbestos dust will be developed similar to what you have suggested. We would prefer to add such later when the most effective methods can be identified and standardized.

T. C. HILL, COMMENTS BY T. C. HILL,- POLYMER INTERMEDIATES - WILMINGTON

COMMENT NO. 80 - The Industrial Products Section of the Polymer Intermediates Department is a distributor for Bendix Corporation for the Micronaire and Model C115 pumps shown under 6.2.1. Therefore, this part of Standard S4T should be changed to show the source of these pumps as: Industrial Products Section, Explosives Products Division, Polymer Intermediates Department.

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REPLY - This source will be included.

COMMENT NO. 81 - In a discussion with D. C. Cannon, Jr. of the Industrial Products Section, he advised that the Model C115 pump is a much higher quality unit than either the Micronaire or the Monitaire (MSA) pump. He also questioned whether the wording "Gravimetric or" ahead of Monitaire is appropriate, i.e., he considers it redundant.

REPLY - Presentation of pump data will be reviewed with Explosive Products Section of Polymer Intermediates Department. Regarding the last question, "Gravimetric" will be used and "Monitaire" deleted.

T. C. HILL, COMMENTS BY D. H. FREIDAY - PID - SAVANNAH RIVER PLANT

COMMENT NO. 82 - Item 2.4 seems to permit the use of asbestos materials where adequate controls are not feasible and limits are not obtainable, if - protective devices are used. Item 2.8 can be interpreted to mean no asbestos can be used if limits are not met. To avoid conflict of interpretation it is suggested that 2.8 be revised as follows: "It is recommended that nonasbestos bearing materials be considered where asbestos contributes to a dust concentration exceeding the permissible exposure limits and where the work consists of more than the execution of occasional repairs or replacements".

REPLY - We do not agree item 2.4 infers this. Paragraph 2.5 does address itself to this as does OSHA. In regard to paragraph 2.8, this will be revised as noted in replies to Comments 40 and 77. We believe this should satisfy your comment.

W. H. MC COY, COMMENT BY R. A. JOHLER - ICD - CLEVELAND PLANT

COMMENT NO. 83 - 3.4.3 - Wording is not clear - suggest change to: "Scrap insulation shall be collected and disposed of in labeled and sealed bags or other containers. Disposal and labeling shall follow plant and local government regulations.

REPLY - We will clarify.

W. E. NEFF, COMMENTS BY R. W. WELLMAN - FILM - CLINTON PLANT

COMMENT NO. 84 - Will be very helpful in implementing OSHA recommendations. Abbreviations in paragraphs 2.3 and 3.6.2 should conform to new Company standard, i.e., cm^3 rather than cc and $ft^3/min/ft^2$ rather than cfm/sq ft.

REPLY - Thank you for your comments.

COMMENT NO. 85 - Paragraph 5.2 ---exceed the ceiling limit of 2.3. Don't you mean --- limit of paragraph 2.3?

REPLY - On rechecking, we find OSHA requires a change room and separate lockers when either the TWA or ceiling limit stated in paragraph 2.3 is exceeded. However, special clothing must be provided only when the ceiling limit of paragraph 2.3 is exceeded. We will correct accordingly.

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Nineteen Engineering Standards Committee members advise an estimated total of 840 uses for this standard as reference per year.

In the absence of additional comments, which should be received by March 20, 1973, this standard will be issued with the revisions shown above.

DESIGN DIVISION
Standards Section

C. E. Marsh
Senior Standards Engineer

CEM:kjk

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