



CELANESE CHEMICAL COMPANY
Chemcel Plant
Bishop, Texas

TO: Mr. E. Munoz

FROM: G. Ille

GI-83

January 3, 1980

ASBESTOS PERSONAL EXPOSURE DATA REVIEW AND RECOMMENDATIONS

A review of asbestos personal sampling data, collected from as early as July 1976 to the present, is summarized below. The primary objective of this review is to evaluate employee exposure to asbestos and to suggest two additions to the draft asbestos administrative procedure (AP) to better define enforcement responsibilities and reporting of spills. Table 1 summarizes the peak exposure concentrations collected on production employees during the actual blend operation and the calculated time-weighted average (TWA) concentrations for an 8-hour day, assuming negligible asbestos exposure during periods when no blend is made. The peak exposure data may be compared to the OSHA ceiling level of 10 fibers per cubic centimeter (fibers/cc), while the 8-hour TWA concentration is compared to the 2 fibers/cc level. A statistical review of the data indicates that there is a 5% probability of exceeding a 0.3 fibers/cc, TWA asbestos concentration in Celanex, a 5% probability of exceeding a 0.04 fibers/cc TWA asbestos concentration in Special Products and a 5% probability of exceeding, respectively, a 2.3 and 1.2 fibers/cc peak concentration levels in Celanex and Special Products. These data indicate that our handling procedures for asbestos is effective, that long-term exposure is minimal and that the probability of a long-term health hazard is small.

Standards for exposure to asbestos fibers have continued to be reduced as more information has been made available through research and epidemiological studies. In 1970, OSHA recommended 12 fibers/cc, TWA which was reduced to five fibers/cc in 1971 under an OSHA Temporary Emergency Standard. In 1972, a Permanent Emergency Standard went into effect maintaining the standard at 5 fibers/cc with an automatic reduction to 2 fibers/cc in 1976. This standard, with a 10 fiber/cc ceiling exposure limit remains in effect today. On October 9, 1975, OSHA proposed a new regulation for asbestos, effectively lowering the TWA exposure limit to 0.5 fibers/cc and the ceiling exposure limit to 5 fibers/cc. This proposed standard was rejected by the asbestos industry as "unnecessary, impractical and lacks medical justification." In December of 1976, the National Institute for Occupational Safety and Health (NIOSH), a research organization under the Health, Education and Welfare Department, recommended to OSHA a 0.1 fiber/cc TWA exposure limit and a 0.5 fiber ceiling limit, primarily to protect against lung cancer and mesothelioma. This recommendation was based on the fact that no "safe" level of asbestos exposure could be found and that any exposure level should be based on the lowest detectable limit. The American Council of Governmental Industrial Hygienists (ACGIH), has recommended 2 fibers/cc as an 8-hour TWA exposure level for chrysotile asbestos fibers. In general, the standards published by this professional group are more stringent than those of OSHA and are regarded to more realistically protect the health of the worker in industry.

At this time, the answer as to how much asbestos exposure is hazardous is still uncertain. Both asbestosis, a progressive deterioration of lung function, and lung cancer are thought to be dose related. This implies that an asbestos dose or concentration should exist, below which impairment or injury does not occur.

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Mesothelioma, a rare cancer of the chest and abdominal cavity lining, has also been found to occur more frequently in people with exposure to asbestos. Although not enough information is presently available to fully ascertain the risk associated with exposure to asbestos, I believe that our employee exposure history for production employees is minimal and that with some additional administrative controls to monitor exposure during opening of and entrance into the SEO Dust Collection Systems, no long-term chronic health effects should occur. This conclusion is based on our present handling procedures for asbestos, the engineering controls that exist to minimize exposure to fibrous asbestos materials, and the low exposure data that has been collected so far. In addition, a comprehensive study conducted by the British Occupational Hygiene Society between 1933 and 1966 concluded that "for an accumulated exposure of 100 fibre-years/cc, it is probable that the risk of being affected, to the extent of having the earliest clinically demonstrated signs, is less than 1%." This important concept, of relating prevalence of disease with concentration and duration of exposure, suggests that employees can safely work in asbestos environments of 2 fibers/cc for 50 years, 4 fibres/cc for 25 years, or 10 fibers/cc for 10 years without developing (99% confidence) the earliest clinical signs of asbestosis. It should again be noted that it is still controversial as to whether the 2 fiber/cc concentration level adequately protects employees against lung cancer or mesothelioma.

Two recommendations were made to further strengthen the asbestos AP and insure that the main goal of protecting employees is achieved. These include a section under enforcement responsibilities and reporting requirements during asbestos spills. With your concurrence, they will be placed under section A5 and A6 of the Administrative Procedure in the following format:

1. Enforcement Responsibility

The responsibility for assuring that the above requirements are fulfilled shall lie with the owning shift supervisor, safety department, and the employee's immediate supervisor. The owning shift supervisor shall be responsible for noting on the AVO whether an asbestos entry or general maintenance permit is required. He will assure that the equipment to be worked on is down and ready for maintenance. The following permits and the protective equipment required for each is listed below:

(a) Entry Permit - When entry is to be made into any vessel or confined space of the SEO Blend System, the following safety equipment shall be worn:

- (1) Positive pressure, airline respirator,
- (2) Disposable coverall, including shoe covers and suitable head covering.

(b) General Maintenance Permit - When any portion of the SEO Dust Collection System/Product Conveying System is opened for either maintenance or inspection, the following safety equipment shall be worn:

- (1) Approved disposable filter respirator,
- (2) Disposable coveralls.

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The General Maintenance Permit shall be issued by the owning shift supervisor who will be responsible for insuring that the above protective equipment is worn.

2. Reporting of Asbestos Spills

All incidences involving the release of asbestos raw materials (e.g. broken asbestos bags, blown out or leaking rubber connectors, etc.) shall be reported to Management, with a copy to the Industrial Hygienist and the Environmental Health Chemist, on the form provided. This will insure adequate historical exposure documentation for the Health Surveillance System.

It should be noted that both the Environmental Protection Agency and the Consumer Product Safety Commission have published advanced notices proposing to eliminate all non-essential uses of asbestos. This is primarily based on studies that show that asbestosis and various cancers are "associated with asbestos exposure, even at low concentrations or after short exposure periods²". An attachment is included for your review. In addition, a Celanex asbestos study was performed by L. R. Birkner and S. Z. Lu to evaluate customer exposure to airborne asbestos fibers during molding, grinding, sanding, and general handling of Celanex VO product. They concluded in the study that customer exposure to asbestos fibers was significantly below current and proposed health standards.

Finally, the asbestos sampling data summarized in Table 1 does not represent operator and helper actual exposure because disposable respirators are worn during the entire SEO Blend operation. Also, the counting method used by the National Loss Control Laboratory, a certified Industrial Hygiene Laboratory, counts fibers and does not differentiate between asbestos or any other fiber, such as glass. Any comments regarding the changes to the Draft Asbestos AP outlined above should be made by January 11, 1980.

G. Ille

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References

- 1 Rajhans, G. S., "Here's an Update on Asbestos," Occupational Health and Safety, December, 1977.
- 2 Chemical Regulation Reporter, "EPA Advance Notice of Proposed Rulemaking on Commercial and Industrial Use of Asbestos," October 19, 1979, pp 1175-1181.

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TABLE 1
FIVE PERCENT PROBABILITY OF EXCEEDING LISTED ASBESTOS PEAK
AND 8-HOUR CALCULATED TWA EXPOSURE CONCENTRATIONS BY UNIT

SAMPLE TYPE	UNIT	ZONE	JOB CLASS	GEOMETRIC		5% PROBABILITY THAT LISTED CONCENTRATION IS EXCEEDED FIBERS/CC
				MEAN FIBERS PER CC	STAND DEV	
TWA	CELANEX	006	OP OP-HLP	0.04	3.2	0.3
TWA	SP PROD	001	OP OP-HLP	0.02	1.8	0.04
PEAK	CELANEX	006	OP OP-HLP	0.27	3.7	2.3
PEAK	SP PROD	001	OP OP-HLP	0.07	5.5	1.2

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SPILL OR EXPOSURE MONITORING REPORT

TO: Technical Manager
 Unit Superintendent
 Unit Supervisor
 Environmental Coordinator
 Industrial Hygienist
 Environmental Health Chemist

DATE: _____

UNIT AFFECTED: _____

EQUIPMENT AFFECTED: _____

CHEMICAL(S) INVOLVED: _____

ESTIMATED LOSS: _____

DURATION OF SPILL/EXPOSURE: _____

EMPLOYEES INVOLVED: _____

ESTIMATED AIRBORNE CONCENTRATION: _____

EXPLANATION FOR THE SPILL: _____

SUGGESTIONS FOR PREVENTING SIMILAR OCCURRENCE: _____

COMMENTS:

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Terrell E. Hunt, chief of the EPA Toxic Substances Branch in the Office of Enforcement, Washington, D.C., said four factors explain the state of PCB enforcement actions.

One major factor is that the PCB rule is a "relatively mature enforcement program" with remedies that can be applied quickly and effectively, Hunt said.

EPA's ability to issue civil complaints and seek court injunctions for alleged violations of the PCB rule makes its use increasingly popular among agency enforcement personnel, Hunt said.

In addition, cleanup of PCB violations often produces cleanup of other hazardous substances and poor storage conditions as well, he said.

And, because PCBs are so widespread and frequently found mixed with other toxic materials, ordering the cleanup of the PCBs generally produces other cleanup activities at sites where the PCB violations occur, he said.

Hunt acknowledged that recent publicity surrounding PCBs in food have had a positive effect on enforcement actions by making both industry and agency personnel more aware of the hazard of PCBs.

Some of the actions, however, have been pending for quite some time and are being filed at the same time only by chance, Hunt said.

He did say, however, that EPA headquarters in Washington recently surveyed the enforcement goals outlined by regional officials at the beginning of fiscal 1979.

Many of the regions were reminded that they were falling short of their inspection goals, Hunt said. The reminder from headquarters spurred many of the regions to increase PCB inspections in the past few months, Hunt said.

Personnel and Training

Another important consideration in the stepped-up enforcement program was the hiring and training of additional enforcement personnel, Hunt said.

In many of the regions, he said, enforcement personnel and inspectors are being diverted from other duties to allow closer monitoring of PCBs.

Hunt said he is "virtually certain" there will be a lot more PCB inspections in 1980 than there were this year. He also expects a concurrent increase in the number of civil penalties and injunctions for PCB violations.

Regional enforcement personnel are becoming adept at choosing the best remedy and regulatory tool to deal with hazardous chemical situations, Hunt said. Because the PCB rule acts quickly and effectively, it is certain to get more frequent use, he said.

Premanufacture Notification

EPA RESPONDING TO COMMENTS, CHANGES FORM, PROCEDURES FOR CONFIDENTIALITY

The Environmental Protection Agency October 16 proposed the form for filing premanufacture notifications, incorporating changes that are expected to make completing it 50 to 60 percent less expensive.

The revised form, which is published in the Full Text section of this issue, is expected to be less costly to fill out because it is shorter and would require less detail than the originally proposed version (44 FR 59764).

EPA first proposed the form and regulations under Section 5 of the Toxic Substances Control Act January 10 (Current Report, January 12, p. 1797). Under EPA's premanufacture notification program, which began July 1, manu-

facturers are required to notify EPA 90 days before manufacturing a new chemical.

Industry responded to the original proposal by saying that it would be burdensome and unnecessarily costly.

EPA announced in May it would revise the form in a way that would reduce the cost of completing it but would maintain the agency's ability to perform risk assessments (May 18, p. 218).

EPA's proposal also includes new procedures for substantiating confidentiality claims. They would require manufacturers to substantiate claims for all information claimed as confidential at the time the notice is submitted (October 12, p. 1097).

EPA also repropose criteria for supplemental reporting under Section 8 of TSCA. Supplemental reporting provisions detail what kinds of information and under what circumstances EPA may call for information from the notice submitter during the notice review period.

EPA also proposed a form for exporters in addition to reproposal of the form for importers and manufacturers.

In addition to reducing the level of detail in the form, EPA also changed the customer contact provisions and the process flow diagram, two controversial sections of the form.

EPA's original proposal would have required the manufacturer to contact potential customers to determine what the uses of the new chemical would be. The reproposal only asks the manufacturer to tell how many commitments it has for uses unknown to the submitter and what percentage of the chemical's production would be involved.

EPA reduced the level of detail that would be required in the process flow diagram. EPA said the process flow diagram now resembles block diagrams often published by industry in trade publications.

The costs of completing the form are detailed in a report prepared by an EPA contractor, A.D. Little Associates, Cambridge, Mass. Copies of the study will be available through the EPA Office of Industry Assistance within a few weeks (October 12, p. 1101).

A 45-day comment period is provided for the reproposal. Comments should include the docket number OTS-050002E and be addressed to the Document Control Officer, Office of Toxic Substances (TS-793), EPA, 401 M St., S.W., Washington, D.C. 20460.

Asbestos

EPA, CPSC TO SEEK TO ELIMINATE ALL NONESSENTIAL USES OF ASBESTOS

All nonessential uses of asbestos in the United States would eventually be banned under regulatory approaches outlined October 17 by the Environmental Protection Agency and the Consumer Product Safety Commission.

The agencies' tentative approaches to the problem of controlling commercial uses of asbestos are described in coordinated advance notices of proposed rulemaking.

CPSC, in its notice, says it intends "initially to seek the elimination of all nonessential uses of asbestos in consumer products from which asbestos fibers are released" (44 FR 60057). The commission does not identify specific products or categories to receive priority attention in its rulemaking.

EPA, however, "has selected asbestos paper products and automobile and light truck brake linings as initial candidates" for regulation (44 FR 60061).

Regulatory Overlap

In a joint policy statement accompanying the advance notices, the two agencies cite the possibility of conflict and

duplication of effort in regulating asbestos uses (44 FR 60056).

CPSC has authority under the Consumer Product Safety Act to take action against hazardous consumer products. EPA has somewhat broader authority under the Toxic Substances Control Act to regulate manufacture, processing, distribution, use, and disposal of any hazardous substance.

The joint policy statement does not clearly define a division of responsibility between the agencies in regulating asbestos uses, and their respective notices list many of the same products as possible candidates for action.

The agencies suggest that "CPSC's authority may enable it to reduce consumer exposure to asbestos-containing products pending more general proceedings initiated under EPA's broader program."

The EPA advance notice and the joint policy statement are published in the Full Text section of this issue.

EPA: Broad Approach

EPA says its "broader approach" will involve analysis of the cumulative "life cycle" risks presented by asbestos products from mining to final disposal. EPA may decide to ban or limit specific products or product categories, or to limit the total amount of asbestos used each year, the agency says.

Alternatively, EPA says, it may use a combination of the two approaches, reducing the amount of annual use by 5 to 20 percent each year while banning selected products that present particular hazards.

The category of asbestos paper products selected by EPA for initial attention accounts for 30 to 40 percent of total asbestos consumption, the agency says. Paper products include roofing and flooring products, tubes, tapes, insulating sheets and blocks used in appliances, gaskets, filters, and general fire-proofing materials.

Friction products, EPA says, account for about 14 percent of total asbestos use, primarily in brake linings.

EPA says acceptable substitutes are available or under development for asbestos brake linings and for many asbestos paper product uses.

EPA says it will attempt to assess the health risks associated with asbestos use to identify "unreasonable risk" on the basis of the availability of reasonable substitutes.

EPA's risk/benefit analysis will include such factors as the need for the product, cost and availability of substitutes, industry structure and employment, energy consumption, growth and profitability, and market segmentation.

CPSC, on the other hand, "does not intend to employ quantitative estimates of cancer risks posed by exposure to asbestos fibers." Because of the seriousness of the injury associated with asbestos, CPSC intends to ban all nonessential uses.

The difference between the two approaches may be more a question of terminology than of substance. Although EPA, in its notice, speaks of "unreasonable risks," rather than "nonessential uses," the agency later suggests that, when all "unreasonable risks have been eliminated, the remaining products and uses will be "essential."

Sections 5, 6, 8 of TSCA

EPA believes "that TSCA provides an effective means of controlling the proliferation of asbestos use in the United States." The agency is considering issuing rules under various sections of TSCA, including:

► A Section 8(a) rule requiring asbestos producers, importers, and processors to keep records and report on

various aspects of the industry, health effects, and worker exposure;

► A Section 8(d) rule requiring submission of all unpublished health and safety studies on asbestos;

► A Section 6(a) rule which may regulate processing, storage, labeling, record-keeping, or distribution; and

► A Section 5(a) rule requiring manufacturers to submit premanufacture notification for significant new uses of asbestos.

CPSCA Authority: 15 U.S.C. 2051-2058

Under the CPSCA, the commission may set consumer product safety standards, require warning labeling, ban products, or require repair or replacement of hazardous products.

CPSC says it intends to issue a notice under Section 27(b) of CPSCA to require manufacturers to submit information on certain asbestos uses.

In their joint statement, the agencies say they plan to share all available data and to coordinate information gathering to reduce the reporting burden on industry.

The agencies ask for comments on regulatory priorities, their proposed approaches, risks and benefits associated with specific uses, and a variety of other issues.

Comments on the EPA notice should be submitted by December 19 to Joni Repasch, Record Clerk, Office of Toxic Substances (TS-793), EPA, 401 M St., S.W., Washington, D.C. 20460. Further information is available from the Industry Assistance Office (TS-799), at the same address, (800) 424-9065, or in Washington, D.C., 554-1404.

Comments on the CPSC notice should be sent by December 17 to Office of the Secretary, CPSC, Washington, D.C. 20207. For further information, contact Francine Shachter, Office of Program Management, CPSC, Washington, D.C. 20207, (301) 254-6241.

Citizen's Petition Granted

In a related development, EPA announced October 18 that it has granted a petition from Glen Scott of Louisville, Ky., that the agency institute rulemaking to ban asbestos cement water pipes (44 FR 60155).

Since asbestos cement pipes are already under consideration in EPA's general commercial use rulemaking, the granting of the petition involves no separate regulatory initiatives.

EPA says in its notice that it is also taking action to reduce asbestos contamination of drinking water under the Safe Drinking Water Act.

Litigation

EPA BAN ON PCBs NULLIFIES INTENT OF CONGRESS FOR CONTROL EDF CHARGES

The Environmental Defense Fund October 19 charged that the Environmental Protection Agency violated the purpose of the Toxic Substances Control Act by defining polychlorinated biphenyls (PCBs) to include only concentrations of 50 parts per million (ppm) or more.

The charges were made in a legal brief filed in the U.S. Court of Appeals for the District of Columbia Circuit. The brief reiterates and amplifies assertions made by EDF when it filed its June 7 petition for review of the EPA ban on PCBs (Current Report, June 15, p. 420).

"The agency's actions in permitting virtually all of the 750 million pounds of PCBs currently in commercial use to continue to be used for many years into the future nullifies the effect of the ban, and defeats the congressional intent by in-