

UNION CARBIDE CORPORATION
INTERNAL CORRESPONDENCE

Jim Dement

P. O. BOX 471, TEXAS CITY, TEXAS

(Texas City asbestos info)

TO: M. E. Durdin
M. D. Lindsey
L. D. Pell
J. A. Roberts

DATE: November 7, 1986

CC: R. A. Mendez
J. B. Leverton

SUBJECT: ASBESTOS STANDARDS

The attached recommendations represents this committee's study on OSHA's final asbestos standards, and its impact on the Maintenance Department.

Following the charter provided, we reviewed OSHA's occupational exposure standards 29 CFR. 1910.1001 and 29 CFR 1926.58. Our conclusions and recommendations yielded from this study, are divided into four (4) major categories.

Maintenance Procedure D-12
Personal Protection Equipment
Training
Summary

These categories are attached for your information and review.

If you have any questions or comments concerning the attached documents, please contact anyone of us.

H. J. Augustus
H. J. Augustus

K. E. Martin
K. E. Martin

J. E. Barnes
J. E. Barnes

R. E. Woodcock
R. E. Woodcock

P. J. Bartlett
P. J. Bartlett

/mdv

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JAN 26 1987
MAINTENANCE DEPT.

UCC 006367

TRAINING REQUIREMENTS

OSHA standards will require extensive revisions in our monitoring procedures, medical surveillance, and employee training programs.

Monitoring changes are now being reviewed by the Industrial Hygiene Department. New equipment has been purchased and is currently in use. The medical surveillance program may be adequate. Representative from Health Services should review their requirements and adjust their procedures accordingly.

All employees entering a regulated area will require specific indepth training.

Effective 1/17/87, OSHA will require that a "competent person or persons" be certified in all aspects of handling asbestos. We as a committee, feel additional certification will be necessary due to anticipated State demands.

PERSONAL PROTECTION EQUIPMENT

OSHA's standards changes will necessitate heavy demands for new asbestos abatement equipment. This committee recognizes the urgency in placing orders for this equipment in an effort to meet OSHA's time schedule and utilize 1986 budget dollars.

Please review our estimates listed below. Purchasing procedures can begin upon management approval of these recommendations. It should be noted that equipment needs may require updating as we adjust to the new standards in 1987.

ITEM	NO. REQUIRED	EST. COST
Portable Change Facility	3	\$45,000
Negative Air Pressure System	1	3,000
HYDA Vacuums Systems	6	7,000
Powered Air Purifying Resp.	12	6,000
Misc. Item/Replacement Parts		
Filters/Warning Signs		4,000
Total Equipment Expenses		\$65,000

1986 TRAINING

Certified "Competent Person"	2	\$ 2,000
Insulator Procedure Training (1986 Maintenance Training Procedure)		

1987 Recommended Training

Additional "Competent" People		\$ 2,000
Insulator State Certification (First Quarter)		\$ 750

MAINTENANCE PROCEDURE D-12 REVISIONS

Significant revisions to our Maintenance Procedure D-12 (Asbestos handling), are a direct result of OSHA's final asbestos standards changes. The reduction in OSHA's exposure limits allowed handling procedure changes from 2.0 to 0.2 fibers per cubic centimeter of air, as measured in an 8-hour time-weighted average. Consequently there is a significant impact on both personal protection requirements as well as confinement of contaminants procedures.

The proposed updated Maintenance Procedure D-12 is attached in the first category. However, it should be noted that this procedure is subject to future revisions as additional OSHA standards information becomes available.

DRAFT

STANDARD MAINTENANCE PROCEDURE

NO.: D-12
PAGE: 1 of 5
EFFECTIVE: 05/04/85
REVIEWED/REVISED: 10/14/86

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING MATERIAL

1.0 PURPOSE

- 1.1 To protect the health and safety of employees directly involved and others who may be exposed to dust/fibers in the immediate area of asbestos-containing material removal or demolition.
- 1.2 To provide a standard method of safe removal and handling of asbestos-containing material in compliance with Plant Procedure I-B-8 and OSHA Standards.
- 1.3 To provide a standard method of disposal of asbestos-containing material from the plant, in accordance with E.P. Department guidelines.

2.0 SAFETY

- 2.1 Breathing asbestos dust may cause cancer and lung disease.

3.0 EXPOSURE LIMITS

- 3.1 Employee 8-hour time-weighted average (TWA 8) exposure to airborne concentrations of asbestos fibers shall not exceed (0.2) fibers, per cubic centimeter of air.

4.0 PROCEDURE

- 4.1 A Hazardous Work Permit will be secured for any work with asbestos.
- 4.2 Where feasible, a negative pressure enclosure will be established before asbestos removal begins.
- 4.3 Caution signs will be posted at all approaches to areas where removal, demolition or handling of asbestos-containing material is being performed.

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING MATERIAL

- R 4.3.1 The signs will conform to 20" x 14" vertical format.
- 4.3.2 The signs will state:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING ARE REQUIRED IN THIS AREA

- 4.4 An appropriate barricade, using green tape, will be erected around the perimeter of regulated areas as a supplementary, protective measure to discourage unauthorized entry.
- 4.5 Insofar as practicable, demolition, removal or handling of asbestos-containing material will be performed while the material is in a sufficiently wet state to prevent emission of airborne fibers exceeding the exposure limits.
- 4.6 Removed insulation will be wetted and placed directly into labeled plastic bags or other suitable containers.
- 4.7 In cases where this is not practicable, place plastic sheeting beneath the job site, mist spray the removed insulation with water, then place in plastic bags.
- 4.8 Vacuuming will serve as an effective alternate cleanup method.
- 4.9 Where a portable change facility is provided, entry to and from the regulated area must be through the change facility.

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING MATERIAL

- R 4.10 Containers used for disposing of removed asbestos material will bear a caution label readily visible and legible which states:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

- 4.11 All external surfaces will be maintained free of accumulation of asbestos fibers. Scaffolds used for this work will be cleaned.
- 4.12 Asbestos waste, scrap, debris, bags, containers, equipment and contaminated disposable clothing for disposal will be collected and sealed in impermeable bags or other closed impermeable containers and placed in place in an area to where damage to the containers would be at minimal.
- 4.13 All pipe or equipment insulated with asbestos containing will be stripped before taking to Salvage or Investment Recovery.

5.0 PERSONAL PROTECTIVE EQUIPMENT

- R 5.1 Respiratory Protection - Employees engaged in the spraying (wetting-down) of asbestos, the removal; in the 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 as follows:

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING MATERIAL

- 5.1.1 An air purifying respirator may be used to reduce exposure below permissible limits, when the ceiling or the 8-hour time-weighted average (TWA 8), airborne concentrations of asbestos fibers are reasonably expected to exceed no more than ten times the PEL limits. This consists of a half face dual cart. Respirator with type "H" filter.
- 5.1.2 An air powered purifying respirator will be available at employee's request.
- 5.1.3 A pressure-demand, supplied-air respirator shall be used to reduce exposure below permissible limits when the ceiling or the 8-hour time-weighted average airborne concentrations are reasonably expected to exceed 10 times those limits.
- 5.2 Special Clothing - The supervisor shall provide and require use of special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed. Contaminated clothing should not be stored in lockers. A daily change is mandatory, more frequently, if conditions warrant.
- A 5.3 Hygiene Facilities and Practices-
 - 5.3.1 A portable clean change facility will be provided as necessary, adjacent to and connected to the regulated areas.
 - 5.3.2 For the purpose of small, short term operations, an HEPA vacuum or glove bag may be used.
 - 5.3.3 A permanent change area is provided for employees use as a follow-up for small short term operations as necessary.

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING MATERIAL

R 6.0 TRAINING

- 6.1 All employees entering a regulated area will be trained prior to and annually thereafter on:
 - 6.1.1 Methods of recognizing asbestos.
 - 6.1.2 The health effects associated with asbestos exposure.
 - 6.1.3 The relationship between smoking and asbestos in producing lung cancer.
 - 6.1.4 Operations that could result in exposure in asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures:
 - 6.1.5 The purpose, proper use, fitting instructions, and limitations of respirators.
 - 6.1.6 The appropriate work practices for performing the asbestos job.
 - 6.1.7 Medical surveillance program requirements.
 - 6.1.8 A review of this standard, including appendices.
- 6.2 All other Maintenance employees will be trained every three years.
- 6.3 Training records will be maintained by the Maintenance Department with a copy to the Safety Department.

ID#0084y/1vh

SUBJECT: HANDLING ASBESTOS MATERIALS

A. PROCEDURE (Continued)

- (R) 9. Disposal containers must be labeled as follows and disposed of under the direction of the Environmental Protection Operations group leader at Building 249.

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

- (A) 10. Where feasible, installed asbestos shall be visibly labeled in the same manner as disposal containers in Section A.9.

B. RESPONSIBILITIES

1. The Owning Department must:

- a. Prepare notifications to the H&EA department of both planned and emergency activities involving asbestos containing materials.
- b. Identify materials containing asbestos prior to initiation of work (asbestest or dispersion staining microscopy required to eliminate insulation from being considered as asbestos).

2. The Health Safety and Environmental Affairs Department must:

- a. Monitor plant compliance with EPA and OSHA regulations.
- b. Provide notification to EPA and TACB for those activities for which notification is required.
- c. Provide asbestos identification test methods and required training.

3. The Medical Department must provide annual physical examinations to employees with potential exposure to asbestos.

C. DEFINITIONS

Asbestos - Any material containing more than 1% asbestos fiber (insulation, excluding foam glass and fiberglass, will be presumed to be asbestos until verified by lab test not to be).

Regulated Area - Any area within an "asbestos" barricade where demolition activities are in progress.

D. CRITERIA AND EXCLUSIONS

This procedure is based on regulations and policies including Safety and Health Technology Manual SH 256, 40CFR. Part 61.140, 29CFR. Part 1910.1000.

UNION CARBIDE CORPORATION
TEXAS CITY PLANT
PLANT PROCEDURE

NO: I-B-8
PAGE: 1 of 3
DATE: 12/15/86

SUBJECT: HANDLING ASBESTOS MATERIALS

POLICY

Repair or demolition of material containing asbestos must be performed in a manner that controls potential employee exposure and contains the material for disposal.

A. PROCEDURE

1. Planned repair or demolition activities where asbestos may be involved must be reported to the Health & Environmental Affairs Department by use of the attached form, one month before the work is planned to start.
2. Unscheduled emergency activities involving asbestos must be reported as soon as possible.
3. Notification to the Environmental Protection Agency and Texas Air Control Board will be provided by the H&EA department when required under the regulations.
4. Asbestos removal will be performed only with the material adequately wetted until it is collected and bagged for disposal. Personnel must wear respirators, disposable coveralls, head and foot coverings, and gloves. See Maintenance Procedure D.11 for detailed procedures.
5. Asbestos material will not be dropped from elevations during handling activities but instead will be either lowered in sections for removal at grade level or transported to grade in dust tight chutes.
6. All asbestos must be picked up at the end of each work day and equipment with exposed asbestos covered to prevent release of fibers.
- (R) 7. Areas where there is a potential for employee exposure to asbestos will be barricaded and posted with signs like this:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

8. All employees involved in handling asbestos, or entering regulated areas, must be trained annually and must follow work practices outlined in Maintenance Procedure D.11.

UNION CARBIDE CORPORATION
TEXAS CITY PLANT

NOTICE OF INTENTION TO DEMOLISH OR RENOVATE A STRUCTURE OR
FACILITY CONTAINING ASBESTOS MATERIAL

1. Description of the facility: _____

2. Estimate of approximate amount of friable asbestos materials present:
(Area in sq. ft. or linear ft.) _____
Estimation technique used: _____
3. Location of facility: _____
4. Scheduled starting day: _____
Scheduled completion day: _____
5. Nature of planned demolition or renovation: _____

Method to be used: _____
6. Name of person that prepared the form: _____
Location and telephone number: _____
Date: _____

NOTE: This form must be completed and delivered to the EP Department (Bldg. #1) at least 30 days ahead of the scheduled starting day of the planned demolition or renovation, or as soon as possible following an emergency renovation operation.

April 11/1985
ID#0184s/jah

UNION CARBIDE CORPORATION
Internal Correspondence

Texas City Plant

November 4, 1986

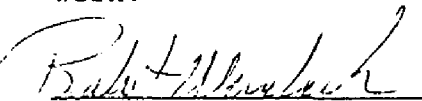
To: M. D. Lindsey

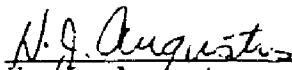
Subject: OSHA Asbestos Standard Implementation

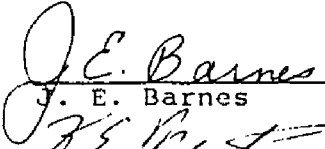
Several areas of concern were identified by the committee during the process of reviewing the revised OSHA asbestos standard and considering its impact on the Texas City Plant. These generally fall outside the scope of the charter given to the committee and are listed here for your consideration.

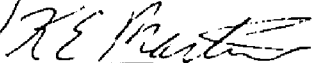
1. There appears to be a need for communication with the turf department heads to encourage them to continue the emphasis on removal/renovation of asbestos containing insulation. Results from the initial effort under Joe Schultz have been inconsistent and to a large extent have been dropped from the budget for 1987. The 3 to 5 year plan adopted in 1985 should be maintained.
2. It is apparent from administering the notice requirements of the existing EPA regulations contained in the Plant Procedure on asbestos, that the plant is largely unaware of the requirement for advance notice to the agencies involved. This has placed a burden on the insulation group to double check each job to assure that required notices were timely provided prior to starting an asbestos renovation/removal.
3. The departments that have complied with the notice provisions in the Asbestos Plant Procedure have consistently given too narrow a time window for the work to be done which has placed an additional burden on the insulation group. Any time frames set for insulation removal or repair should be set with the cooperation and agreement of the maintenance organization.

In general it is the recommendation of the committee that an effort be made to inform all employees of the new asbestos procedure requirements emphasizing the notice required to the regulatory agencies and highlighting the increased costs that will be associated with future asbestos renovation/removal. The insulators are available to provide estimates on manhours required for specific jobs, and to assist in identifying priority work.


R. E. Woodcock, Chair


H. J. Augustus


J. E. Barnes


K. E. Martin


P. J. Bartlett

ASBESTOS CHRONOLOGY
TEXAS CITY PLANT

1. MAY 16, 1985 ASBESTOS INSULATION ACTION PLAN, (J.S.)
2. AUGUST 13, 1985 J.S. REPORT TO MANAGERS
3. JUNE 20, 1986 ASBESTOS OSHA RULE PUBLISHED
4. JULY 11, 1986 COPY OF STANDARD TO MAINTENANCE
5. AUGUST 26, 1986 INITIAL DETERMINATION OF WHICH STANDARD
 PLANT WOULD BE REGULATED UNDER
6. SEPTEMBER 4, 1986 MAINTENANCE COMMITTEE FORMED TO ADDRESS
 REVISION OF MAINTENANCE PROCEDURES
7. OCTOBER 22, 1986 REVISED PLANT PROCEDURE PUBLISHED FOR
 REVIEW
8. NOVEMBER 7, 1986 REPORT TO MAINTENANCE ON RECOMMENDED
 REVISIONS AND EQUIPMENT ADDITIONS
9. NOVEMBER 20, 1986 DEPARTMNT HEAD SAFETY COMMITTEE
 PRESENTATION
10. NOVEMBER 25, 1986 REVISED PLANT PROCEDURE PUBLISHED
11. DECEMBER, 1986 REVISED MAINTENANCE PROCEDURE ISSUED
12. JANUARY 17, 1987 MANDATORY COMPLIANCE DATE
13. YET TO COME ? TEXAS REGULATIONS ON WORKER
 CERTIFICATION

12/11/86, KEM

OCCUPATIONAL HEALTH

Bob Woodcock
INTERESTING!
12/88

COURT BATTLES LOOM OVER OSHA'S ASBESTOS STANDARDS

By Richard M. Kendall

OSHA will be in Federal court this fall trying to fight off challenges from labor and industry to its recently revised asbestos standard for general industry and its new asbestos standard for the construction industry.

Under the two final standards, which were announced in June and became effective July 21, the permissible exposure limit (PEL) for asbestos is 0.2 fiber per cubic centimeter over an eight-hour time-weighted average, a tenfold reduction from the 2.0 fiber/cc PEL which had been in effect since 1976. OSHA had proposed either a 0.2 or 0.5 fiber/cc PEL in 1984.

The standards also establish a 0.1 fiber/cc "action level" which triggers a series of medical monitoring, employee training, and other requirements. The standards do not include short-term exposure limits.

OSHA's old asbestos standard applied to all industries. The new general industry standard applies to all industries except construction. The new construction standard for asbestos, the first health standard issued strictly for the construction industry, covers new construction, general building renovation, asbestos abatement, demolition, and contracted maintenance operations.

Both standards generally require that employers use engineering controls, where feasible, and work practices to reach the PEL. In some sanding and grinding operations in general industry, respirators may be used if feasible engineering controls fail to reduce exposures to below 0.5 fiber/cc. Employers are no longer permitted to rotate workers in and out of asbestos-exposed areas as a means of achieving compliance with the PEL. Both standards require employers to provide respirators to employees where feasible engineering controls are insufficient to reduce exposure levels to the PEL, to maintenance workers, and in emergencies. Where respiratory protection is necessary, the level of exposure determines the type of respirator that must be provided.

Under the new asbestos standards, "regulated areas" must be established where exposures are above the PEL. Only authorized persons wearing respirators are permitted in regulated areas. Eating, smoking, drinking, chewing gum or tobacco, and applying cosmetics are prohibited in regulated areas. In general industry and construction, signs must be posted to demark regulated areas. If asbestos removal, demolition, or renovation is being performed in a regulated area in construction, enclosures with negative pressure must be employed to assure that asbestos cannot escape to unregulated areas. The construction standard also requires that a "competent person," one capable of identifying asbestos hazards and with authority to take prompt corrective action to abate such hazards, be named to monitor compliance with the regulated area requirements. The construction standard provides exemptions from the regulated area requirements for small-scale, short-duration operations.

Both the general industry and construction standards require employers to provide workers exposed above the PEL with protective clothing and ensure that it is used, replaced, stored, disposed, and laundered properly. Change rooms, showers, and lunchrooms must also be provided when exposures exceed the PEL.

In general industry, employers must perform initial monitoring of employees who are, or may be expected to be, exposed to asbestos above the action level; no initial monitoring is required if the employer, using objective data, has determined that there are no asbestos exposures at or above the action level. Subsequent monitoring must be done with a frequency tied to the exposure level, and in no case may monitoring intervals be longer than six months for employees whose exposure can be foreseen to be above the action level. In construction, monitoring of asbestos levels must be done daily when exposures are above the PEL, but monitoring can be dispensed with in regulated areas where workers wear supplied air, positive pressure respirators.

Annual medical surveillance is required in general industry where employees' exposure exceeds the action level. In construction, surveillance is required when workers are exposed above the action level for 30 or more days per



Nash: OSHA failed to establish a significant risk of injury from asbestos at 0.2 fiber/cc.



**AFL-CIO's Seminario
said the union supports
EPA's proposal to
phase out asbestos use
because OSHA's new
standards leave workers
at risk.**

year, or if they wear negative-pressure respirators.

The new asbestos standards also require detailed annual training and education programs for workers exposed above the action level to warn them of asbestos hazards and inform them about safe work practices. Material safety data sheets, as prescribed in OSHA's hazard communication program, are to be used in the training and education programs under the asbestos standard. Warning signs are required in regulated areas, and warning labels must be affixed to raw materials, containers, scrap, debris, and products containing asbestos. Employers performing asbestos work on multi-employer construction sites are also required to inform other employers of the nature of the work, the existence of regulated areas, and work rules that pertain to them.

Legal challenges

OSHA's two new asbestos standards were immediately challenged in the Federal courts by organized labor groups, asbestos trade organizations, and two manufacturers affected by the standards.

The AFL-CIO's Industrial Union Department filed a petition for review of the general industry standard before the U.S. Court of Appeals for the District of Columbia Circuit, and the AFL-CIO Building and Construction Trades Department filed a petition for review of the construction standard before the same court.

The AFL-CIO said that after waiting for a decade for a revision of the asbestos standard, "asbestos-exposed workers deserve a stronger standard." The union pointed out that, even with the tenfold reduction in the PEL, seven of every 1,000

workers exposed to asbestos over a working lifetime will die of chronic exposure-related diseases (OSHA, in its preamble to the new standards, had stated that the 0.2 fiber/cc PEL left exposed workers at a significant risk of incurring asbestos-related disease, but the agency said that a lower PEL was infeasible.). The union had sought a 0.1 fiber/cc PEL during rulemaking.

The union also criticized OSHA's failure to include short-term exposure limits (STEL) in the standards. "This means workers who are involved with asbestos removal and maintenance operations can be exposed to high levels of asbestos in jobs of short duration with no protection required," the union complained. Sheldon Samuels, the Industrial Union Department's director, health, safety, and environment, in decrying the exclusion of a STEL, argued that peak asbestos exposures permitted under the standards can overwhelm the body's natural defense mechanisms, putting workers at extreme risk.

Samuels did, however, express gratitude to Secretary of Labor William Brock for moving the asbestos standards out of the Office of Management and Budget (OMB) where it had been lodged for some time. The budget office is accused by some critics of trying to delay release of the standards and to unduly influence their content in the course of its regulatory review. OMB has denied these allegations. Rep. John D. Dingell (D-MI), chairman of the House Subcommittee on Oversight and Investigations is investigating OMB involvement in asbestos rulemaking. (Dingell was also a party in a recently-decided case challenging OMB's authority in agency rulemaking; he is also trying to eliminate funding for OMB's regulatory review office. See "OSHA Communique" elsewhere in this issue.)

In another challenge to the OSHA standards, the Asbestos Information Association (AIA), a U.S. trade group, sought review of the standards before the U.S. Court of Appeals for the Fifth Circuit in New Orleans. Government Affairs Counsel Kenneth Nyquist said AIA believes accurate monitoring of asbestos exposures at the 0.2 fiber/cc level is not technically feasible and, therefore, will pose compliance difficulties.

The Asbestos Institute (AI), a Canadian non-profit organization funded in part by Canada's asbestos mining industry, petitioned to intervene in the AIA case. AI President Gary Nash contends that in formulating the standards, OSHA did not meet its court mandate of establishing a significant risk of injury from asbestos at 0.2 fiber/cc. He also criticized OSHA's standards for failing to require different controls for different types of asbestos, depending on their varying health effects in humans, as he maintains asbestos standards in other countries do.

Another suit, filed in the U.S. Court of Appeals for the Second Circuit in New York by R.T. Vanderbilt Co., a maker of industrial talcs, sought a stay of the asbestos standards as they apply to

**Secretary of Labor
William Brock is
credited with dislodging
the asbestos standards
from OMB.**



tremolite, anthophyllite, and actinolite, three minerals which are regulated as asbestos under the new standards. Allan Harvey, Vanderbilt's director of environmental affairs, said the OSHA standards fail to differentiate between the fibrous, asbestos forms and the non-asbestos forms of the minerals. Because the three minerals are so common in rocks mined in the U.S., many mining operations would fall under the standards and many rock products would have to be labeled as containing asbestos, even if the asbestos forms of the minerals were not present, Harvey said. OSHA, on July 24, issued a temporary administrative stay (effective until April 21, 1987) of the asbestos standards as they apply to the non-asbestos forms of the minerals; the old 2.0 fiber/cc standard will apply to these forms of the minerals while OSHA reviews comments by NIOSH, Vanderbilt, and others concerning their regulation.

All petitions for review of the asbestos standards, except for a challenge filed at presstime, have been transferred to the U.S. Court of Appeals for the D.C. Circuit. The most recent action, filed by 3M Co. in the U.S. Court of Appeals for the Eighth Circuit in St. Louis, seeks a stay of the portions of the standards which limit the selection of negative pressure, half mask respirators to those with high efficiency filters only. A 3M spokesman said the company believes that, in writing respiratory protection selection portions of the standards which prohibit the use of an entire class of NIOSH-approved disposable respirators of the type made by 3M, OSHA failed to consider research data that proves the efficacy of such respirators in protecting workers from asbestos. It's expected that the 3M Co. suit will also be transferred to the D.C. Circuit court.

EPA hearings

Meanwhile, at presstime, EPA was holding two weeks of administrative hearings on its January proposal to ban asbestos in certain products and to phase out other uses of asbestos over a 10-year period. At a hearing, AFL-CIO Associate Director of Occupational Safety, Health, and Social Security Margaret Seminario said OSHA's new standards will leave exposed workers at risk of disease, and that the AFL-CIO therefore generally supports the EPA proposal where feasible and where substitute materials that are known to be less harmful than asbestos are available; she also recommended testing and control of substitute products as part of an asbestos phase-out plan. Asbestos industry spokesmen from AIA and AI, on the other hand, said their organizations would testify that the ban is unnecessary because asbestos is primarily an occupational concern that is being adequately addressed by the OSHA standards.

In upcoming issues, we'll keep you posted on developments as the legal and regulatory maneuvering continues.

OSHA has told all field inspectors that in-house containers of Hazardous material must have target organ effects, and appropriate hazard warnings on the label to be in compliance with Right To Know. Our Right Label™ is the only label that has it!

ACETONE

CAS NO. 67-64-1

Physical
Hazard
Health
Hazard

Flammable, Explosive.
Irritant, Eye, Skin
and Lung Hazard.

Caution: See Safety Data Sheet before Use.

2" x 3" for squeeze bottles, 3" x 4 1/2" for larger containers. Written by professional toxicologists.

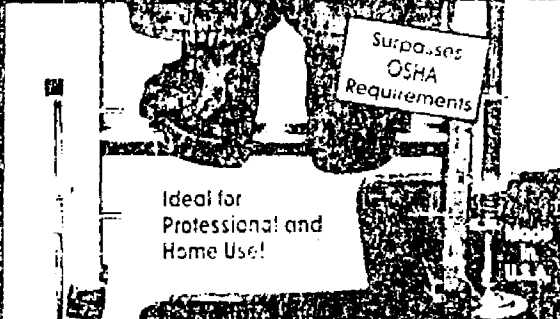
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OSHA Issues New Asbestos Standards

(Continued from Page 1)

Lpm, with no maximum specified.

By standardizing the sampling procedure used, OSHA hopes to reduce the relatively large inter-laboratory variability which may partly result from different laboratories following different procedures.

OSHA also requires that persons performing asbestos analysis attend the NIOSH course for sampling and evaluating airborne asbestos fiber concentrations, or equivalent. From a practical standpoint, this may turn out to be a formidable task.

Although no accurate figures are available, a rather large number of people are currently engaged in asbestos sampling and analysis, particularly at asbestos removal jobs. Imparting NIOSH training to all those persons could be a lengthy process.

It should be emphasized that participation in a course alone does not ensure competency in asbestos analysis. Only successful participation in an ongoing rigorous quality control program, such as the ALHA PAT program, can ensure maintenance of proficiency. While OSHA mandates participation in such a program, it does not specify any performance requirement.

For general industry, OSHA requires that initial air monitoring be conducted prior to October 1986 to evaluate employee exposures. If an employer has already conducted such monitoring after December 20, 1985, OSHA will accept that data. If the initial or subsequent monitoring indicates 8-hour, time-weighted average (TWA) exposures exceeding the action level, monitoring must be repeated every six months.

For the construction industry, OSHA requires that initial monitoring be conducted at the beginning of each job involving asbestos unless monitoring data from an earlier but similar project

can be presented or if the employer can demonstrate with objective data that employee exposures will not exceed 0.1 fibers/cc. If initial monitoring indicates 8-hour, TWA exposures above the action level (0.1 fibers/cc), the employer must conduct representative daily monitoring unless all employees are provided with supplied air respirators.

For general industry, when exposures are found to be above the PEL, OSHA requires employers to establish regulated areas and change rooms (including showers), and provide employees with respiratory protection, coveralls, gloves, head and foot coverings, and eye protection, and

to develop a written compliance program. The employer is also responsible to ensure that employees shower at the end of the work shift. For employees exposed at or above the action level, OSHA requires annual training of employees and preplacement, annual, and termination-of-employment physical examinations.

For the construction industry standard, when exposures are found to be above the PEL, OSHA requires the establishment of a regulated area and use of respiratory protection and protective clothing. For projects involving removal of asbestos-containing materials, OSHA

(Continued on Page 7)

TABLE 1

Measured 8-Hour, TWA Exposure

Not in excess of 2 fibers/cc (10 X PEL)

PERMISSIBLE EXPOSURE LIMIT

Not in excess of 10 fibers/cc (50 X PEL)

Not in excess of 20 fibers/cc (100 X PEL)

Not in excess of 200 fibers/cc (1,000 X PEL)

Greater than 200 fibers/cc (>1,000 X PEL) or unknown

Type of Respirator

Half-mask air-purifying respirator equipped with high-efficiency filters

Full facepiece air-purifying respirator equipped with high-efficiency filters

Any powered air-purifying respirator equipped with high-efficiency filters

Any supplied-air respirator operated in continuous flow mode

Full facepiece supplied-air respirator operated in pressure demand mode

Full facepiece supplied-air respirator operated in pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus

Clayton Environmental Consultants

No. 23, July 1986

OSHA Issues New Asbestos Standards

newsletter

by Michael A. Coffman, C.I.H.
Manager, Industrial Hygiene
Services

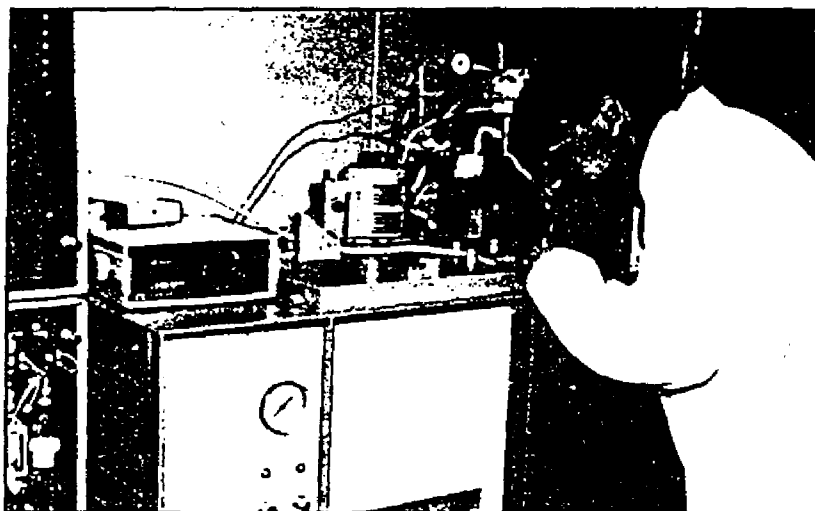
Since it was first proposed in April 1984, the revised OSHA asbestos standard has been the subject of much debate. On June 20, 1986, in the latest round of that debate, OSHA issued two final rules for asbestos: 29 CFR 1910.1001 for general industry, and 29 CFR 1926.58 for the construction industry.

In issuing two separate rules, OSHA recognized the difficulties most employers have faced in trying to apply the existing standard (which was intended for fixed places of employment) to construction, renovation, demolition, and maintenance work involving asbestos-containing building products.

The new OSHA regulations reduce the permissible exposure limit (PEL) for asbestos from 2 fibers (longer than 5 micrometers) per cubic centimeter of air (fibers/cc) to 0.2 fibers/cc and establish an "action level" of 0.1 fibers/cc.

OSHA has also specified a mandatory reference method for air sampling and analysis in both versions of the standard. The sampling and analytical method is essentially the same as the 7400 method proposed by NIOSH in February 1984 (see Clayton Newsletter 16). The principal

difference between the NIOSH 7400 method and the OSHA reference method (ORM) is the sampling flowrate. Under the ORM, the sampling rate is restricted to 0.5 to 2.5 Lpm, while the NIOSH method permits air sampling at any flowrate above 0.5
(Continued on Page 6)



Dr. Shekar Viswanathan characterizes odors using organoleptic (sensory) and gas chromatographic techniques.

An Environmental Dilemma

Industrial Odors

by S. Viswanathan, Ph.D.,
P.Eng.
and

A.W. Gnyp, Ph.D., P.Eng.
Windsor Office

...the gas chromatograph/mass spectrometer, has in general neither the sensitivity nor the discriminative ability of the bloodhound...—Carl Sagan, *The Dragons of Eden*.

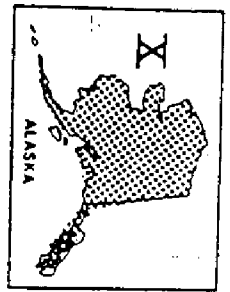
Even with the considerable advances in environmental analytical techniques, identification

and control of industrial odors remains elusive and poses a dilemma. In many instances, success depends more on the investigator's ingenuity, intuition, and experience than on established engineering and scientific principles.

Of the various categories of air pollutants, odors are the most immediately noticeable in a neighborhood. They generally are
(Continued on Page 2)

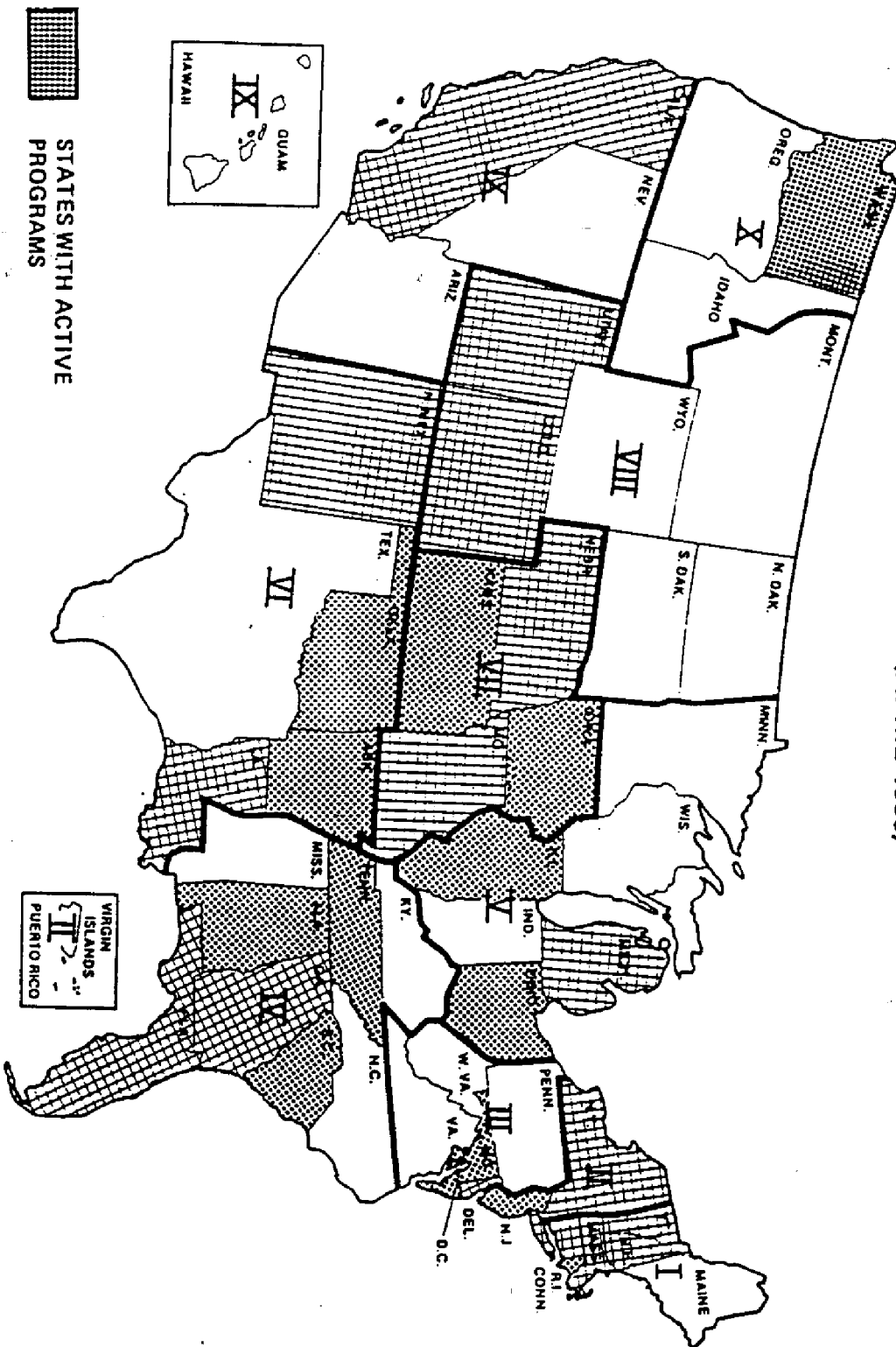
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STATUS OF ASBESTOS ABATEMENT CONTRACTOR CERTIFICATION AND TRAINING PROGRAMS AND LEGISLATION

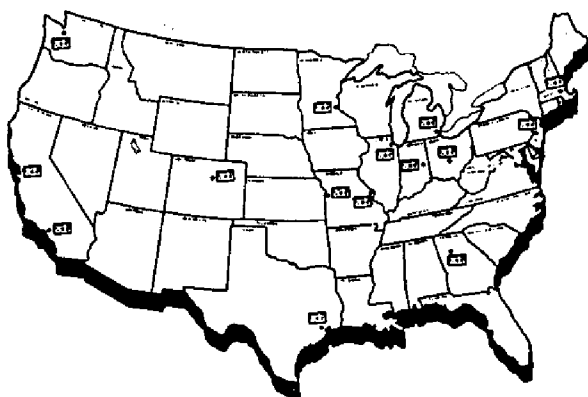
(APRIL 1986)



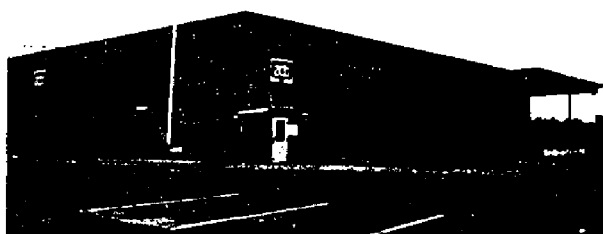
Asbestos Control Technology, Inc.

America's Asbestos Control Supermarket

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15 warehouse locations allow us to deliver your order in 48 hours anywhere in the continental U.S.



KNOWLEDGE, SERVICE, SPEED, RELIABILITY

Asbestos Control Technology, Inc., is North America's oldest and largest asbestos safety supply company. Long experience with asbestos abatement contractors, architects, consultants and engineers provides us with a unique vantage point on an industry that becomes more complicated each day.

Above all, ACTI is a service company. We provide one-stop shopping for all items needed for dealing with any size asbestos problem in a building. Our network of 15 warehouses across the country ensures that no matter where you are located within the continental United States, we can deliver to you within 48 hours. We know that when you need asbestos safety supplies, you often need them in a hurry. And that's exactly the kind of service we routinely provide with our national computerized processing center in New Jersey. If you'd like further technical information on any of the items you see in this catalog, call us. We support our products with extensive data sheets and technical literature.

While equipment and supplies are the most visible part of our operation, we're also in the information business.

Our sales staff remains in constant touch with the federal, state and private officials across the country who are the official and unofficial leaders of our industry. When regulations and guidelines change, our sales people are the first to know. If you're involved with an asbestos-in-buildings situation for the first time, we can provide you with books and video tapes which will enable you to quickly understand the overall problem as well as the options for solving it.

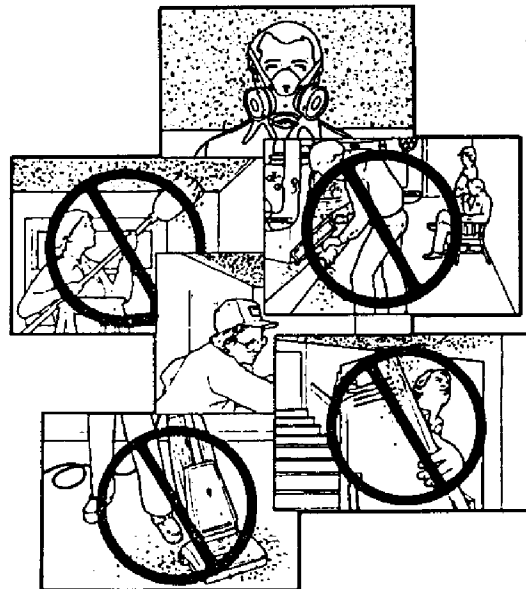
Our research department is constantly reviewing developments in the field to keep abreast of the latest technologies and techniques for asbestos abatement work. And, we also keep you up to date on the political and legal aspects of the market. Our bi-monthly newsletter, *Asbestos News*, ranges from job sites to the halls of Congress as it brings you inside-industry information available from no other source.

Knowledge. Service. Speed. Reliability. That's what Asbestos Control Technology has been about since it was started as America's first asbestos safety supply company years ago. Call today to be placed on our permanent mailing list.



Asbestos in Buildings

Guidance for Service and Maintenance Personnel



RACAL

Presents



Breathe-Easy:

number one in
powered air,
positive pressure,
gas, vapor and
particulate protection.

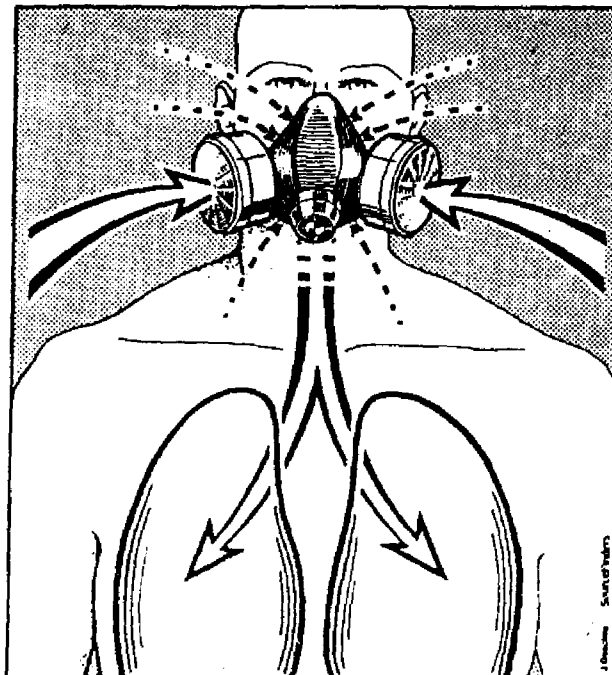
Racal Airstream, Inc.
7309A Grove Road
Frederick, MD

Toll Free - 800-682-9500
in MD - 301-695-8200

THE TWO RESPIRATOR CATEGORIES *Negative Pressure, Positive Pressure*

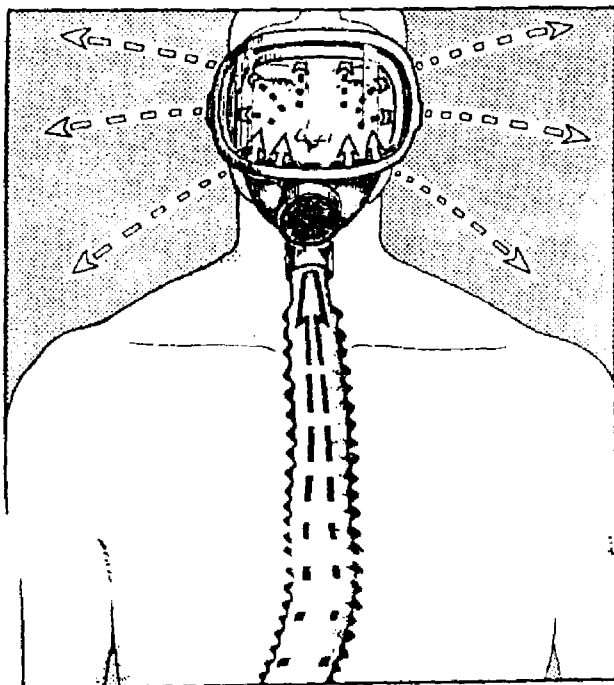
NEGATIVE PRESSURE

Negative-pressure respirators operate on lung power. When the user breathes in, a suction or "negative-pressure" is created in the face piece. This negative-pressure, in turn, pulls in air through the cartridges. Different types of cartridges are made for these respirators to filter various toxins. For asbestos, HEPA (High Efficiency, Particulate, Air) cartridges are always used. Because the negative pressure which pulls outside air in through the cartridges can also pull contaminated air in through any loose face seals, negative pressure respirators are generally used for light asbestos conditions. For instance, the U.S. EPA recommends half-face HEPA cartridge respirators as the minimum for janitors, custodians and maintenance workers who come into daily contact with asbestos-covered pipes and surfaces.

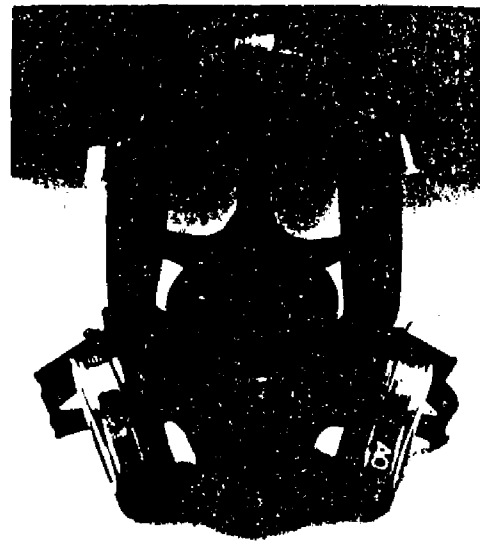
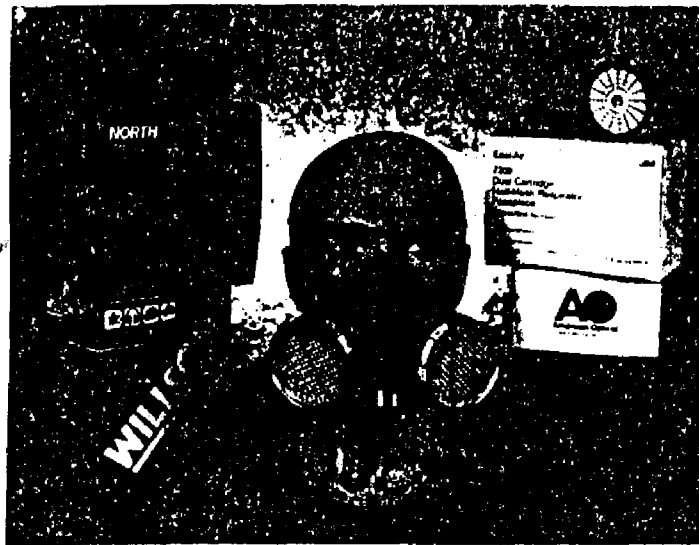


POSITIVE PRESSURE

Positive-pressure respirators use motorized pumps to supply about four cubic feet of filtered or processed air per minute to the user. Because the air is forcibly delivered, the air pressure inside the face piece is higher than the pressure of the outside, ambient air. This higher or "positive-pressure" adds an extra dimension of protection because even if leaks do exist between the face piece and the wearer's face, the higher pressure inside the mask will constantly force air outward--thus preventing the inward movement of contaminated air. There are several kinds of positive-pressure respirator systems ranging from small, portable units which utilize miniaturized, battery powered motors attached to the worker's body, to large, high-pressure, Type-C, supplied air breathing systems which use industrial compressors and chemical processing units to provide Grade-D air to large-scale working crews.



ACTI NEGATIVE-PRESSURE RESPIRATORS



HALF-FACE NEGATIVE-PRESSURE RESPIRATORS

60101	S-6000 large silicone face piece, AO	20 per box	15.10 each
60102	S-5000 medium silicone face piece, AO	20 per box	15.10 each
60103	S-4000 small silicone face piece, AO	20 per box	15.10 each
60121	S-4500 small 5-star silicone face piece, AO	20 per box	15.10 each
60122	S-4500 medium 5-star silicone face piece, AO	20 per box	15.10 each
60123	S-4500 large 5-star silicone face piece, AO	20 per box	15.10 each
✓60110	7700-30S small silicone face piece, North	12 per box	14.80 each
✓60111	7700-30M medium silicone face piece, North	12 per box	14.80 each
✓60112	7700-30L large silicone face piece, North	12 per box	14.80 each
60115	7200 small/medium rubber face piece, 3M	10 per box	11.15 each
60116	7300 medium/large rubber face piece, 3M	10 per box	11.15 each
60113	S-1200 silicone face piece, Willson	12 per box	14.50 each
60671	1500-SS inflatable face piece, Willson	1	29.70 each

FULL-FACE NEGATIVE-PRESSURE RESPIRATORS

60106	R-7000 Commander full-face, dual cartridge, AO	101.50 each
60124	R7700 Full-face, dual cartridge with R-57A cartridges, AO	109.00 each
60703	5150-1 Anti-fog nose cup assembly, AO	26.50 each
60119	1700 Full-face, dual cartridge, 6 strap harness, Willson	109.80 each
60118	1600 Full-face, dual cartridge, swivel ratchet, Willson	113.25 each
60117	7600-8S Full-face, dual cartridge, North	118.95 each

NEGATIVE-PRESSURE RESPIRATOR SUPPLIES

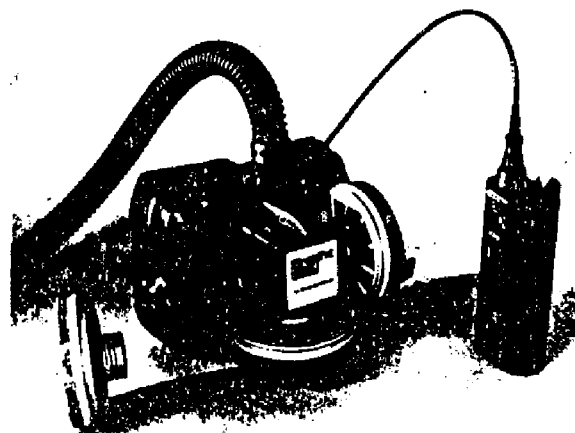
Stock	Brand	HEPA CARTRIDGES			Packaged
		1-100	101-149	150-200	
60608	AO, R-57A	3.80	3.30	2.85	10 box/200 case
60663	Willson, R-12	3.55	3.24	2.92	252 case
60662	North, 7500-8	3.50	3.13	2.82	144 case
60665	3M, 7255	3.37	3.20	2.86	10 box/60 case

Over 200 cartridges: Call for special prices

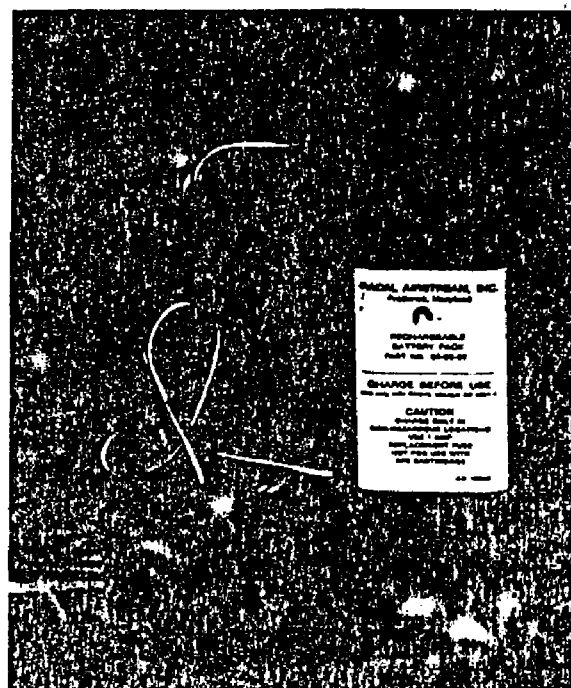
60612	Organic vapor cartridge, R-51A, AO, 10 per box	3.05 each
60681	Organic vapor cartridge, N7500-1, North, 6 per box	3.10 each
60687	Organic vapor cartridge, 7251, 3M, 10 per box	3.10 each
60682	Organic vapor cartridge, R-21, Willson, 6 per box	3.12 each
60602	Storage bag, 1/2-face resp., FP917, 90 per box	22.45 box
60601	Storage bag, full-face resp., FP856, 45 per box	13.60 box
60668	Cartridge filter retainer, HEPA, 7289, 3M, 2 per pack, 10 pk/case	1.50 each
20101	Lensacide respirator lens cleaner, 1/2 gallon, 6 per case	42.00 each
60785	Wiping pads for respirator cleaning, North, 100 per box	14.40 box
60720	Fit test: Isomyl Aletate (banana oil), North, 10 per box	4.25 box

ACTI POWERED, AIR-PURIFYING RESPIRATORS

HEPA-Filtered Breathe-Easy 7 With Turbo Unit



The Racal Breathe-Easy 7 is a self-contained, positive-pressure, constant-flow respirator system. A battery-powered turbo unit is worn on a belt on the waist and is fitted with two HEPA cartridges. This unit delivers four cubic feet of air per minute into the wearer's face piece. Both the face mask and the turbo unit are constructed of neoprene and are designed to withstand rugged, daily use.



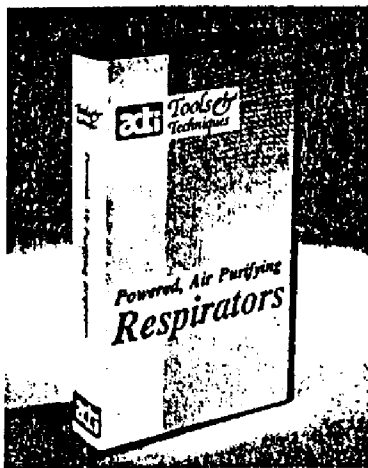
The Breathe-Easy 7 unit is powered by a nickel cadmium battery pack which is worn on the belt. Normally worn in a plastic pouch to protect it from debris, the battery runs for at least eight hours before it requires recharging. Then, it can be recharged overnight at any standard electrical outlet. There is currently a mild controversy over the question of how to wear the head straps on PAPR rigs. Many authorities say the straps should always be covered by a Tyvek hood. However, other authorities in the asbestos abatement field explain that covering the straps make sit more difficult for the worker to adjust or tighten them frequently for maximum protection throughout a work shift.

ACTI FEATURES RACAL AIRSTREAM PAPRS

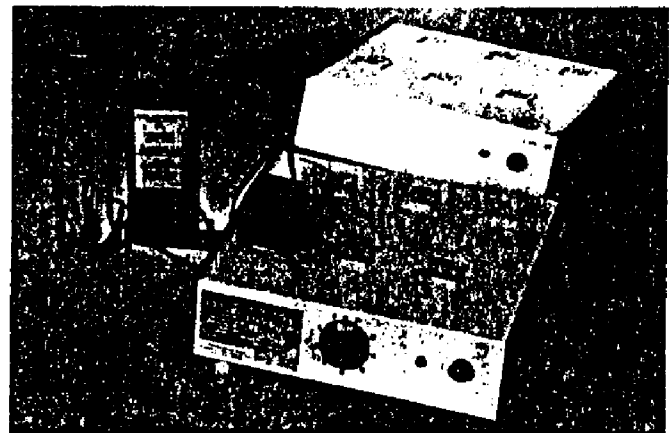
NEW POWERFLOW PAPER



The "Powerflow" is the latest technological breakthrough in the PAPR field. Introduced in 1986, this unit features an ultra-miniaturized motor and a single, double-thick HEPA cartridge mounted on the face piece. This new design, for the first time, offers a positive pressure respirator nearly as light and comfortable to wear as the traditional negative pressure cartridge respirators which offer much lower protection factors. While minimum in size, the "Powerflow" delivers the same four cubic feet per minute of HEPA-filtered air as larger PAPR systems. It utilizes the same rechargeable nickel cadmium battery as the Breathe-Easy 7 unit.



ACTI offers an 18-minute video which explains and demonstrates both the Breathe-Easy 7 and the Powerflow units. Call now.



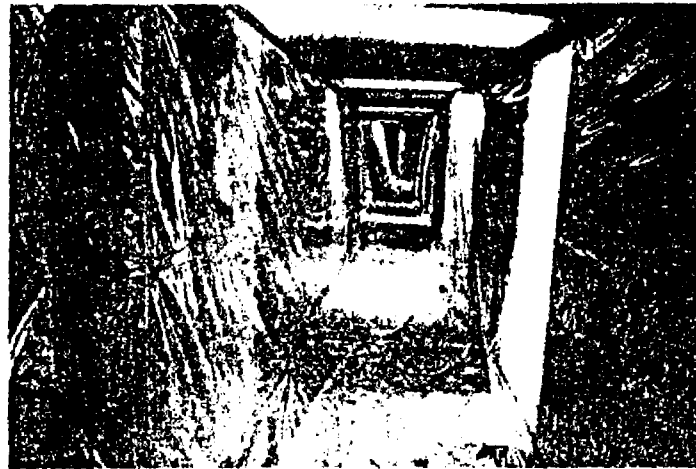
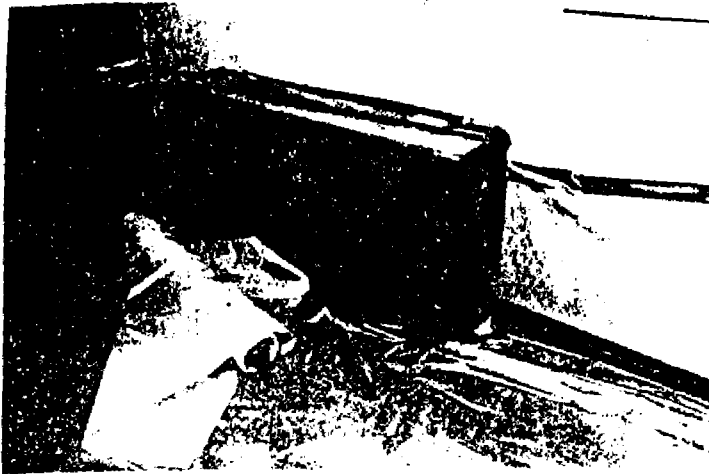
For contractors with large crews, ACTI offers battery recharging stations which allow for more than a dozen batteries to be charged at a single outlet overnight.

PRICE LIST: ACTI'S PAPRS & ACCESSORIES

60210	Powerflow unit, Racal, complete unit		428.00 each
60693	HEPA cartridge, Super P-3 for Powerflow	6 per box	15.55 each
60201	Breathe Easy7, Racal, complete unit		536.00 each
60610	HEPA cartridge, P-3 for Breathe Easy7	12 per box	10.15 each
60606	Battery pack, 60-03-09		117.00 each
60630	Battery pouch, vinyl		12.00 each
60604	Battery charger		44.00 each
60635	Visor protector for face shield, AS-10282	10 per pack	8.00 pack
60653	Primary charging station AS-4010		133.00 each
60439	Secondary charging station AS-4011		112.00 each

COVERING & CONTAINMENT SUPPLIES

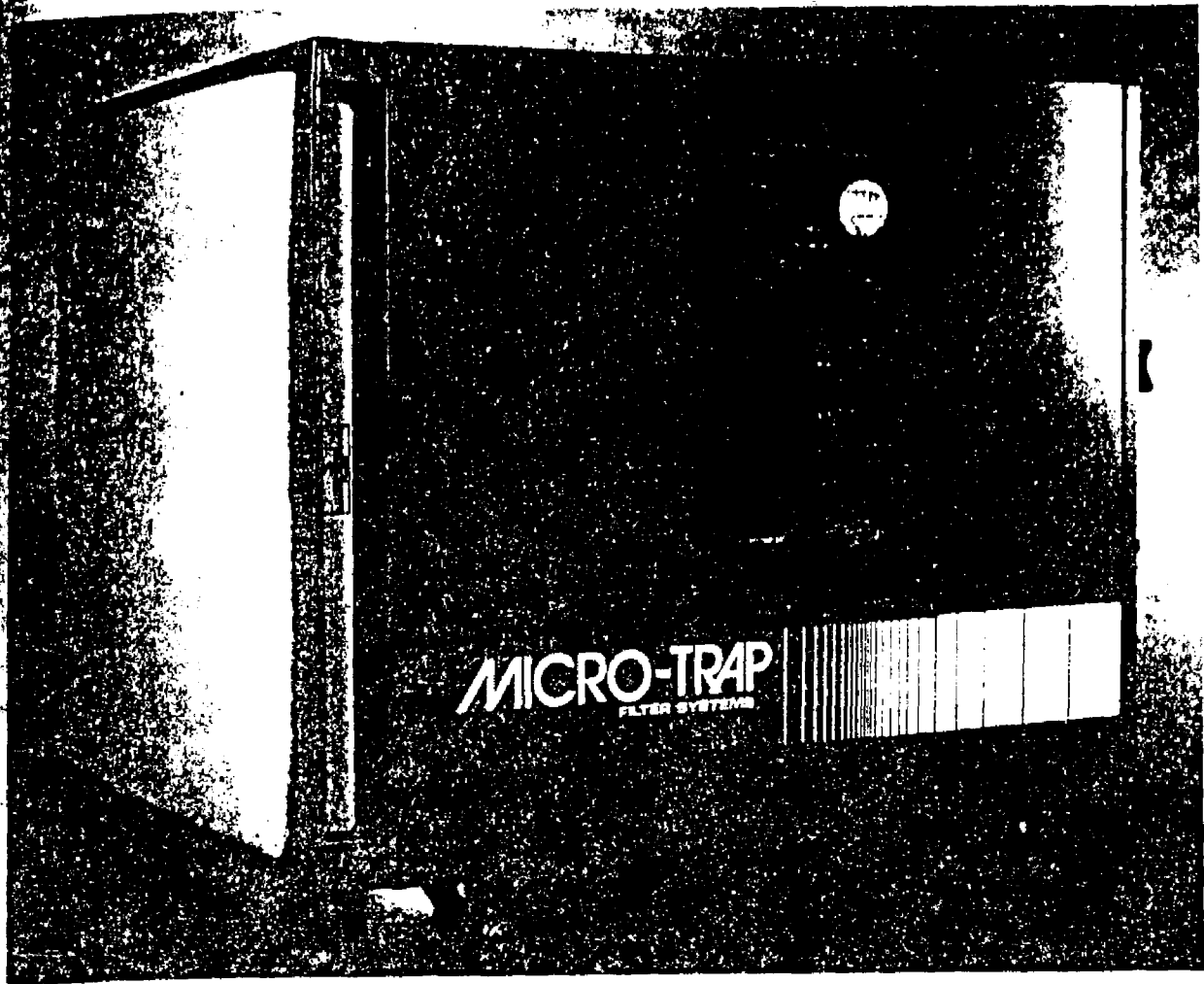
**ACTI-POLY: SPECIALLY FORMULATED FOR
MAXIMUM STRENGTH AND RESILIENCE**



Polyethylene film: Call for current prices

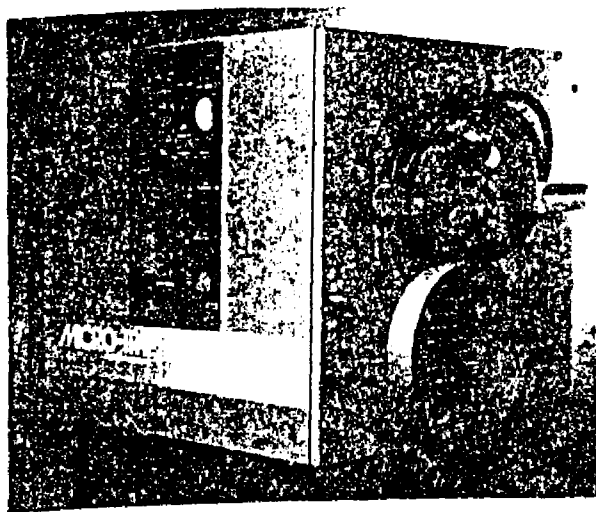
45118	Polyethylene film, clear, 4 mil, 10 X 100	49 rolls per skid
45101	Polyethylene film, clear, 4 mil, 12 X 100	49 rolls per skid
45105	Polyethylene film, clear, 4 mil, 20 X 100	25 rolls per skid
45113	Polyethylene film, clear, 6 mil, 12 X 100	36 rolls per skid
45116	Polyethylene film, clear, 6 mil, 10 X 100	36 rolls per skid
45103	Polyethylene film, clear, 6 mil, 20 X 100	25 rolls per skid
45102	Polyethylene film, black, 4 mil, 12 X 100	49 rolls per skid
45123	Polyethylene film, fire retardant, 6-mil, 20 X 100	1 roll, 69.95
45104	Polyethylene film, fire retardant, reinforced, 6-mil 20 X 100	1 roll, 175.00

NEGATIVE AIR EQUIPMENT



MICRO-TRAP MT-S

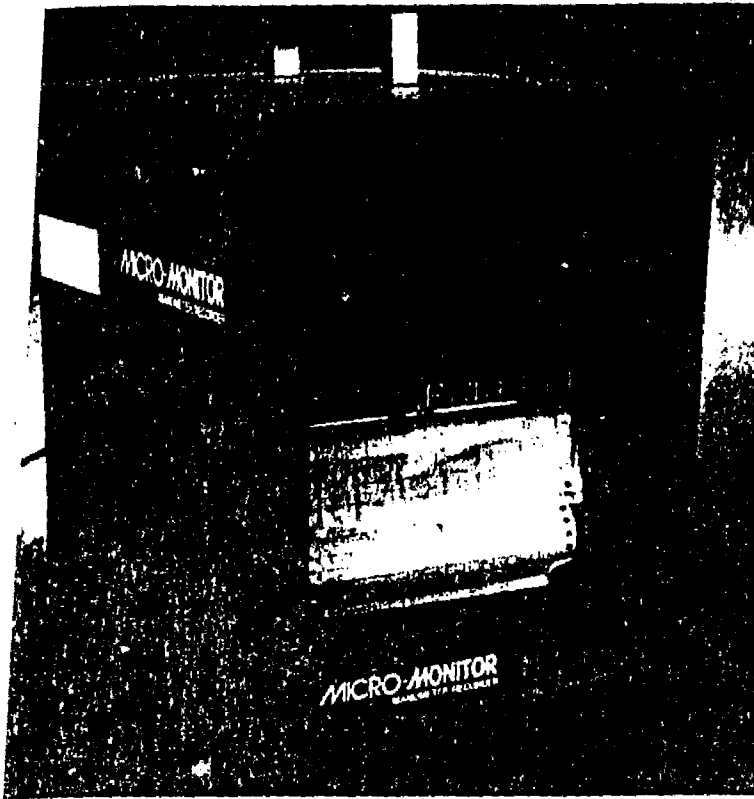
The Industry Leader



This is the workhorse of the asbestos abatement industry and the machine around which negative air systems were originally designed. It moves 1,800 cfm through its three-stage filter. The main HEPA filter is 99.99% efficient for particulates to 0.3 micron. A high-powered, low-amperage motor allows this heavy-duty unit to run on a 15-amp circuit. The MT-S also includes an array of ultra-sophisticated control systems which monitor the machine's internal operation and automatically shut it down when internal pressure conditions indicate duct obstructions, filter ruptures, and other problems. Includes mercury relays, elapsed time recorder, 12-hour delayed shutdown and other high-tech features.

30101 MT-S with HEPA \$2,584.00

NEGATIVE AIR EQUIPMENT



MICRO-MONITOR As Recommended By New OSHA Regulations

The new OSHA asbestos regulations published in June of 1986 call for many changes in the officially recommended abatement methods. One of the most important calls for the daily use of a manometer—a pressure measuring device capable of monitoring the negative pressure conditions inside the job site. In 1985, at the request of architects and inspectors who had to monitor job sites, Micro-Trap Inc., specifically designed a manometer for measuring and documenting negative air conditions. The Micro-Monitor is the most sensitive instrument of its kind and has a digital readout panel, a built-in, dual-speed strip chart recorder and other high-tech features to maximize its speed, accuracy and reliability.

55202 Micro-Monitor \$1,950.00

MICRO-TRAP, The Total Systems Company

Micro-Trap is nationally renowned for engineering total air control systems. This is important to remember in a marketplace where many companies are selling odd components. Micro-Trap supports its negative air systems with everything required. Our Hydro-Safe Ground Fault Interrupt, pictured at the right, is an example of our specialized, safety-oriented engineering programs. ACTI provides you with complete negative air systems as well as in-depth technical support.



30611	Filter, main, HEPA, 24 X 24 X 11.5	1	159.75 each
30615	Filter, #2 prefilter	6 per case	57.00 case
30616	Filter, #3 prefilter	30 per case	29.90 case
30607	Flex duct, 12" X 25 feet	1	85.00 each
30608	Disposable duct, 12", 100-foot roll for MT-S	1	38.00 roll
30747	Extension cord, heavy gauge for MT-S, 50 ft	1	53.35 each
30748	Hydro-Safe Ground-Fault Interrupt	1	75.00 each
30622	Vacuum attachment for Mt-S	1	240.00 each
30627	Filter, main, HEPA for Jr., 14 X 20 X 11.5	1	159.75 each
30626	Filter, #2 prefilter for Jr., 16 X 20 X 2	12 per case	71.76 case
30625	Filter, #3 prefilter for Jr., 16 X 20 X 1/2	60 per case	30.00 case
30628	Flex duct, 10" X 25 feet	1	60.00 each
30635	Disposable duct, 10", 6-mil, 100-ft. roll, Micro Jr.	1	35.00 roll
30629	Vacuum attachment for Jr.	1	240.00
10613	Replacement strip chart paper, 10 pack/box	1	30.00 box
10614	Replacement strip chart pens, 5/box	1	15.00 box

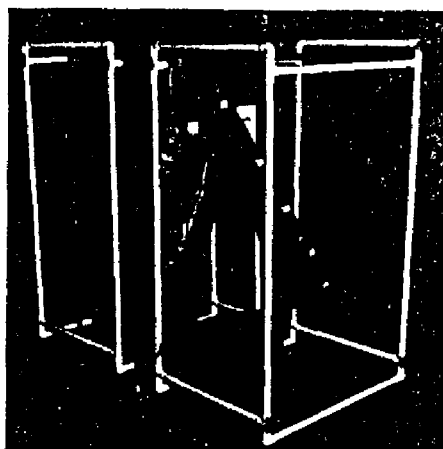
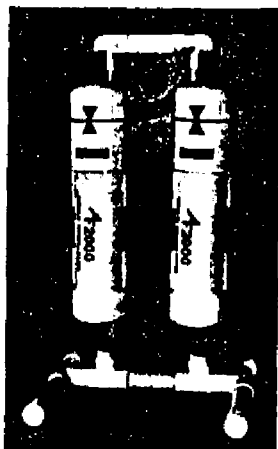
Summary of State Asbestos Abatement Certification and Training Programs

States w/ cert. & train prog.	Effective Date of latest Regs.	Training for Supervisors	Training for Workers	Training for Others	Re-Training Requir.	Exam	Applicability	School Hazard Assess.	Enforcement Agency
Alabama	1983	GA. Tech AMCI Course	1 day in Alabama	Arch. Eng.	yearly	yes	State funded projects and public schools	yes	Building Comm.
Alaska	2/9/86	32 hours	32 hours	----	Every 3 years	yes	All Asbestos abatement work	no	Labor
Arkansas	1/1/86	State Run, 2-3 days	State Run, 2 days	----	----	yes	All Public and commercial Bldg.	no	Pollution Control and Ecology
Illinois	11/29/85	Length and content of GA. Tech, K.U., Tufts	15 hrs.	----	Plans to add this	yes	Public and Private Schools	yes	Public Health
Iowa	7/85	5 hours if they work with asbestos	5 hours	----	annually	no	Anyone engaged in asbestos projects	no	Labor
Kansas	1/6/86	18 hours Kansas U.	6 hours	----	annually	yes	Anyone engaged in asbestos abatement	no	Health and Environment
Maryland	4/83	5 hours	5 hours	----	annually	not currently	Anyone engaged in asbestos abatement	no	Health and Mental Hygiene
New Jersey	5/85	30 hours	30 hours	Air monitors, custodians and maintenance workers	bi-annually	yes	Abatement contractors who work in public and private sectors.	yes	Labor and Health Depts.
Ohio	11/4/85	Contractors 22 hours	Workers 10 hours	----	bi-annually	yes	Schools	no, pending leg.	Health

Summary of State Asbestos Abatement Certification and Training Programs

States w/ cert. & train prg.	Effective Date of latest Regs.	Training for Supervisors	Training for Workers	Training for Others	Re-Trng. Requir.	Exam	Applicability	School Hazard Assess.	Enforcement Agency
Oklahoma	Provisional 3/1/86, final 9/1/86	Contractors 64 hours (approx.)	32 hours includes supervisors		yearly 32 hours	yes	All asbestos abatement both public and private	yes	Labor
Rhode Is-land	2/4/86	4 days	4 days	Air samp-lers and other con-sultants (archi-tects, etc).	annually	yes	Anyone con-ducting as-bestos abat-ment	yes- all facil-ities regul-ly by children	Health
South Carolina	5/86 not yet in effect	GA. Tech K.U or Tufts	1 day	Air samp-lers and architects	annually	yes	All areas except pri-vate industry	yes	Health and Environmental Control
Tennessee	1/1/86	EPA approved or sponsored courses	-----	-----	not form-ally re-quired	no	All asbestos abatement contractors	no	Board for licensing contractors
Washington	11/21/85	30 hours	30 hours	-----	bi-annu-ally	yes	All asbestos projects in public or private bldgs	no	Labor and Industries

DECONTAMINATION EQUIPMENT



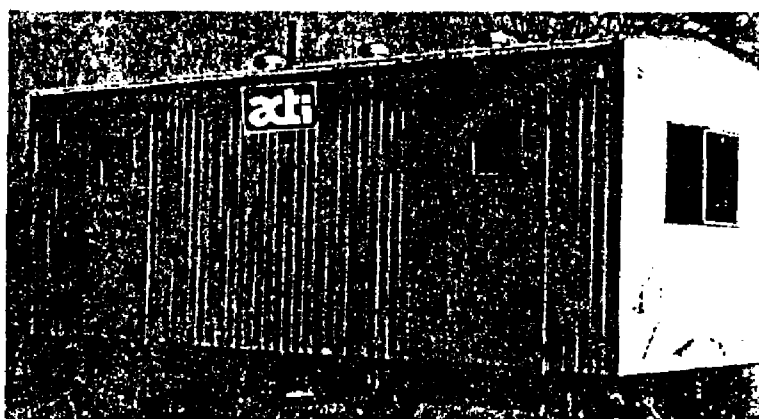
Spot Shot Shower, Water Filter System

For small jobs where a single shower decontamination chamber is required, the Spot Shot offers speed and ease of use. Weighing a total of 55 pounds, it assembles in a few minutes as a three-chambered unit ready to be covered with polyethylene.

For shower run off, the AF 2000 provides the most effective water filtration system available for asbestos. Water is passed through a filter bag which stops larger particulates. Shower filter of polyvinyl chloride.

Mobile Decontamination Trailer Unit For Crews

Here's the perfect answer for contractors seeking to decrease time and labor costs during setup. This mobile trailer includes built-in showers, a high-capacity water heater, hot air heaters, benches, and three-chamber segmentation. The unit can be parked close to a door and connected with polyethylene tunnels to become an integral part of the containment barriers. Contractors who have changed to this system now swear by it.



Everything Needed For Full Decontamination

The business of removing asbestos from buildings can be a frenzied affair; the entire profit potential of a job can hang on a tight deadline. ACTI understands the nature of the industry and has geared its inventories accordingly. Whether you require plentiful supplies of disposable paper towels for your decon unit, hand pads for cleaning, replacement filters or other supplies, we'll get your order to you when you need it.

65115	Single chamber water filtration system, AF-2000	1	238.90
30603	Filter bag, 5 micron	1	4.42
30613	Filter bag, 10 micron	1	4.42
30201	Water filtration system, RBX-A2L with O-ring	1	378.50
65114	Super Spot Shot portable shower unit	1	850.00
80101	Towels, disposable, 20 X 40, 300 per case, 20 cases per skid		50.00 case
93206	Mobile trailer decontamination unit, complete, 20 X 8 ft.	1	7990.00

Critical Systems

DECON TRAILER SPECIFICATIONS

Trailer

- o ~~8' x 20' or 26'~~ (8'x26') o 100 Amp Service
- o Double Axle
- o Electric Brakes
- o 16" Tires

Dirty Side

- o 3' Side Door
- o 4' Rear Door
- o Negative Air System (2000 CFM Stainless Steel)
- o Marlite Interior
- o Seamless Non-porous Floor
- o 4 Bulb Fluorescent Light Fixture
- o 2 Electrical Outlets
- o Island Bench
- o Trash Receptacle with Lid

Shower Area

- o 2 Showers with Lights
- o Hot Water System
- o Waste Water Holding Tank
- o Water Filtration (5 Micron) - Automatic Operation

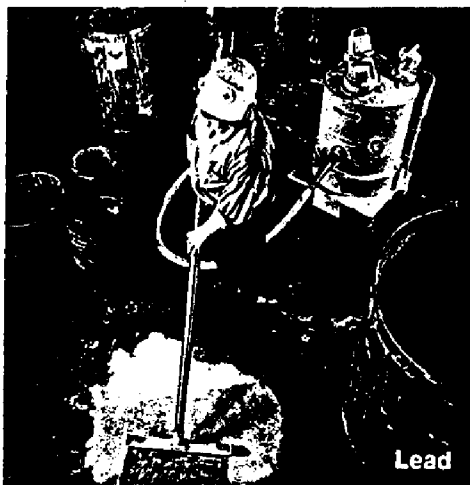
Clear Side

- o 3' Side Door
- o Air Conditioner/Heater
- o Marlite Interior
- o Seamless Non-porous Floor
- o 4 Bulb Fluorescent Light Fixture
- o 2 Electrical Outlets
- o Island Bench
- o 15 or 16 Unit Lockers
- o Locking Cabinet
- o Coat and Hat Rack

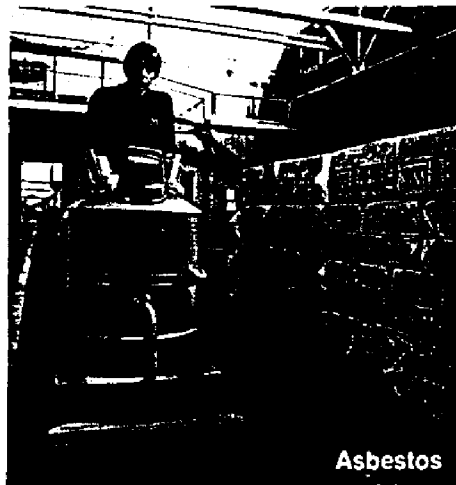
*APPROX 22,000
WITH TRANSFORMERS
FROM 440 TO 110*

**Nilfisk simplifies
the safe collection
and disposal of
toxic, hazardous, and
nuisance waste
materials.**

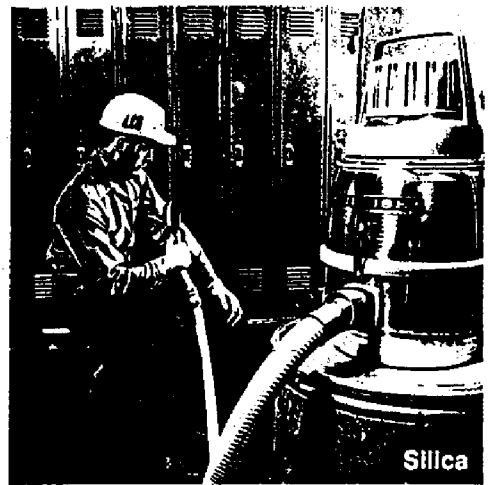
Unique absolute filtering
system meets or exceeds
OSHA and EPA
requirements for toxic
materials as lead,
asbestos, silica, mercury,
beryllium alloy, insecticides,
cotton dust, and other
health endangering dusts.



Lead



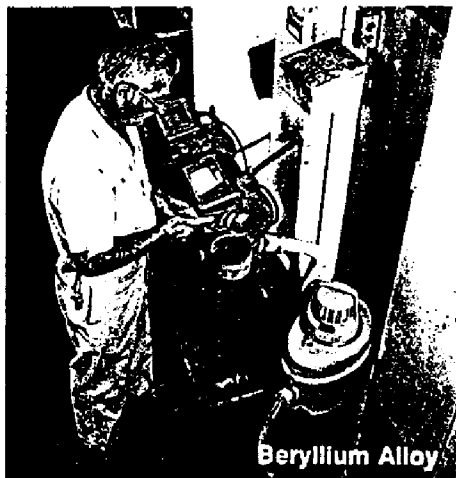
Asbestos



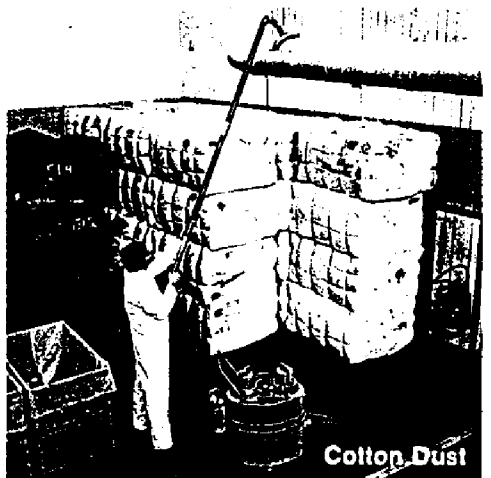
Silica



Mercury



Beryllium Alloy



Cotton Dust

Encase[®]

Exclusive from Abanda[®]

No other nylon reinforced material—

- Has high anti-static performance.
- Is totally encapsulated
- Provides consistent quality

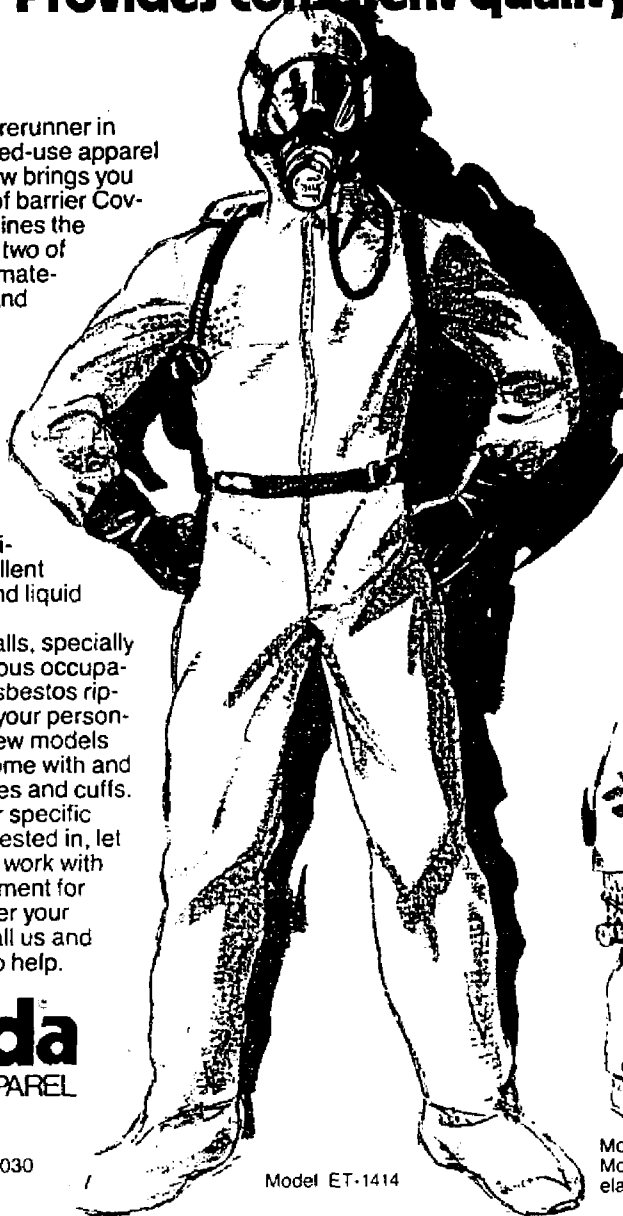
Abanda, the forerunner in development of limited-use apparel for over 27 years, now brings you Encase, a new line of barrier Coveralls. Encase combines the unique properties of two of today's most useful materials; Cerex[®] nylon and polyethylene film.

Cerex[®] non-woven spunbonded fabric, when united with polyethylene under heat and pressure creates a strong, resilient fabric with superior barrier qualities. It provides excellent resistance to fiber and liquid contaminants.

Encase Coveralls, specially designed for hazardous occupational use such as asbestos rip-outs, will safeguard your personnel. There are five new models (three illustrated), some with and without elastic sleeves and cuffs. If there are any other specific models you are interested in, let us know and we can work with you to develop a garment for your needs. Whatever your requirements are, call us and we will be pleased to help.

Abanda[®]
PROTECTIVE APPAREL
Disposables Inc.

14 Locust Street
Manhasset, New York 11030
(516) 627-4554 or
(800) LABCOAT
Telex: 221500 ASAS. Attn: DIS



Model ET-1414

Typical Properties*		
		Test Method
Fabric Weight, oz/yd ²	1.3	ASTM D 1910
Fabric Thickness, mils	3.4	ASTM D 1777
Air Permeability, CFM Ft ²	0	ASTM D 737
MD TD		
Grab Tensile Strength, lbs	22 11	ASTM D 1682
Trapezoid Tear Strength, lbs	5.5 4.5	ASTM D 1117
Flame Retardancy	Passes F.F. Act Requirements. Additional data is available upon request.	

*Shows typical properties of Encase fabrics and is not intended to serve as exact specifications



Model ET-1427
Model ET-1428 with elastic wrists and cuffs



Model ET-1412
Model ET-1417 with elastic wrists and cuffs

Sold exclusively through Abanda Authorized Distributors

Cerex is a registered trademark of Monsanto Company



ISEA

AD-SAFE PRODUCTS

SUGGESTED RESALE PRICE LIST

TRADE PRACTICES

LIMITATIONS OF WARRANTIES

Ad-Safe Products is covered by a standard manufacturer's warranty policy against defects in materials and workmanship. In the event the customer should submit a timely and valid claim under such warranty, Seller agrees to cooperate in processing that claim. **IN ALL EVENTS, SELLER ITSELF MAKES NO WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, UNLESS EXPRESSLY SET FORTH IN WRITING, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM ANY CONTRACT.** No agent, employee, or representative of the Seller has any authority to bind the Seller to any affirmation, representation, or warranty concerning the goods we sell beyond that specifically included in a written quotation.

LIMITATION OF REMEDIES

In substitution for any remedy provided by law, Seller's liability for damage for any claimed defect, breach of warranty, or breach of contract shall be limited to return of goods and repayment of the purchase price or, at the Seller's option, to replacement or repair of any non-conforming goods or parts. In no event shall the Seller be liable for any consequential or incidental damages for any claimed defect, breach of warranty, or breach of contract.

SPECIALS

This catalog includes most of the standard items in Ad-Safe Products' product line. Items of special designs are also available subject to technical limitations and quantity requirements.

<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>STANDARD PACKAGE</u>	<u>PRICE</u> <u>PER CASE OR ROLL</u>
830005	Caution Labels	3" x 5" 1,000/roll	\$60.00
830010	Barrier Guard	3" x 1,000' roll	20.00
830015	Warning Signs - 14" x 20" Vinyl	Case of 25	40.00
830017	Warning Signs - Spanish	Case of 25	45.00
830030	Spray Adhesive - 16 oz.	Case of 12	45.00
830031	Adhesive Remover - 16 oz.	Case of 12	39.00
830040	Disposable Towels - 20" x 40"	Case of 300	57.00
830090	Water-Wetter™ Surfactant	Case of 6 each, 1 gal. bottles	45.00
83446007	Glove Bag, 7 mil	Case of 25	162.50
83446010	Glove Bag, 10 mil	Case of 12	108.00

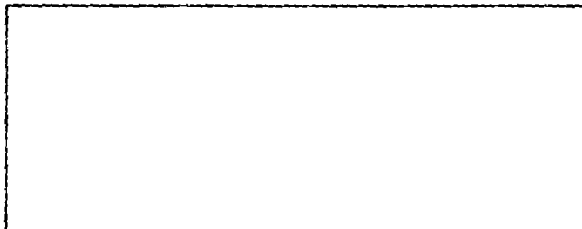
Available Exclusively From:

ABATEMENT TECHNOLOGIES

P.O. Box 930416 • Norcross, GA 30093

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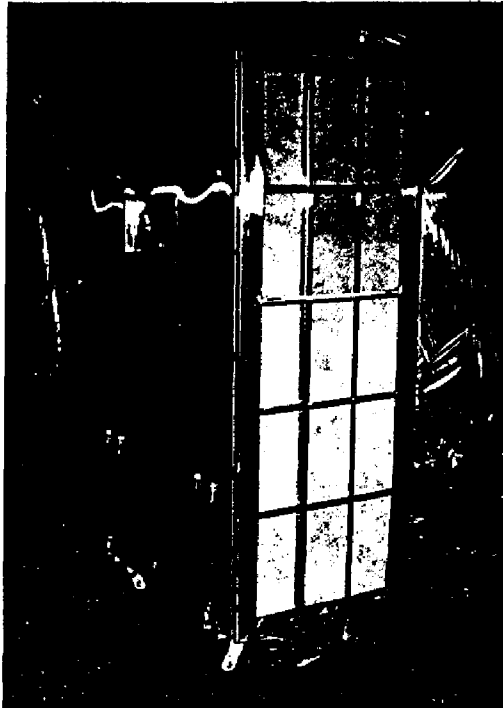
EFFECTIVE DATE MAY 1, 1986.
SUPERSEDES ALL PREVIOUS PRICE LISTS.

UCC 006404

Critical Systems

6K

NEGATIVE AIR PRESSURE SYSTEM



The 6K, a newly developed negative air pressure system designed and manufactured by Critical Systems, is the answer to those abatement projects normally requiring 3 or more smaller machines by effectively combining power and ease of handling into one machine with its working capacity of 6000 CFM.

The satin finished stainless steel outer casing measures 76 inches high, 46½ inches long, and is a mere 28 inches wide. In addition, the 8 strategically located handles and 4 swivel casters allows the 6K to be moved in and out of narrow doorways and other small spaces with a minimal amount of effort.

The 6K control panel features an easy-to-read Helic gauge, an "On" indicator light, and an accumulative hour meter. The 6K is powered by a 3 H.P., 208/230 volt, 20 amp, single phase, thermally protected motor with starter.

When power and mobility are abatement project requirements, consider the advantages of the 6K Negative Air Pressure System available only through Critical Systems.

SPECIFICATIONS

Dimensions:

Height — On Dolly — 85¼"
Off Dolly — 76"
Length — 46½"
Width — 28"
Weight — 585 lbs. with Filters

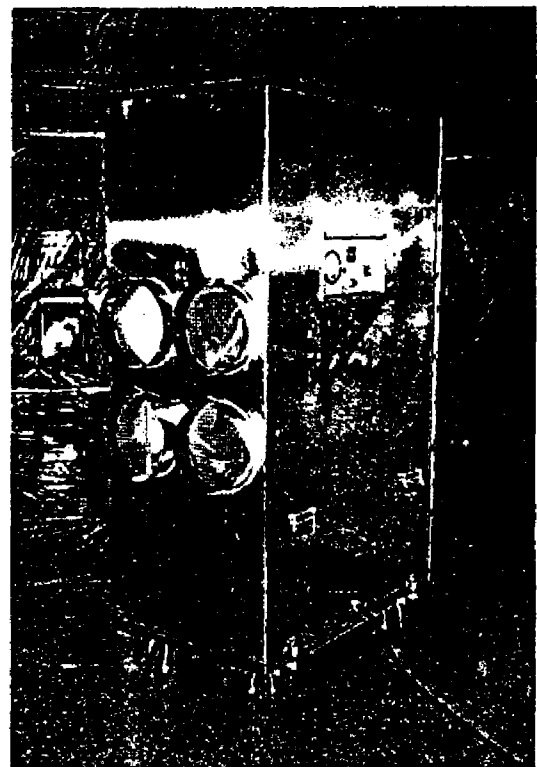
Filters:

24" X 72" X 1" — 1 Prefilter
24" X 24" X 2" — 3 Secondary
24" X 72" X 11½" — 1 HEPA,
99.97% Minimum Efficiency

Construction: Satin Finished 18 Gauge Stainless Steel
Input Power: 208/230 Volt, 20 AMP Circuit, Single Phase
Motor: 3 H.P., Thermally Protected with Starter
Working Air Capacity: 6000 CFM

FEATURES

- 8 Easy Lift Handles
- Accumulative Hour Meter
- "On" Indicator Light
- 4-12" Discharge Outlets
- Helic Gauge
- 4-6" Heavy Duty Casters
- Optional Intake Adaptor Available
- Meets ANSI, OSHA, EPA, and NEC Standards
- Contains All UL Approved Components



For more information, call or write to:
CRITICAL SYSTEMS • 2828 BROAD • HOUSTON, TEXAS 77087 • 713-649-4554

HEPA-AIRE™ 2000

NEGATIVE AIR FILTRATION MACHINE

THE NEW STATE-OF-THE-ART IN AIR FILTRATION TECHNOLOGY.

AUDIO & VISUAL ALARMS

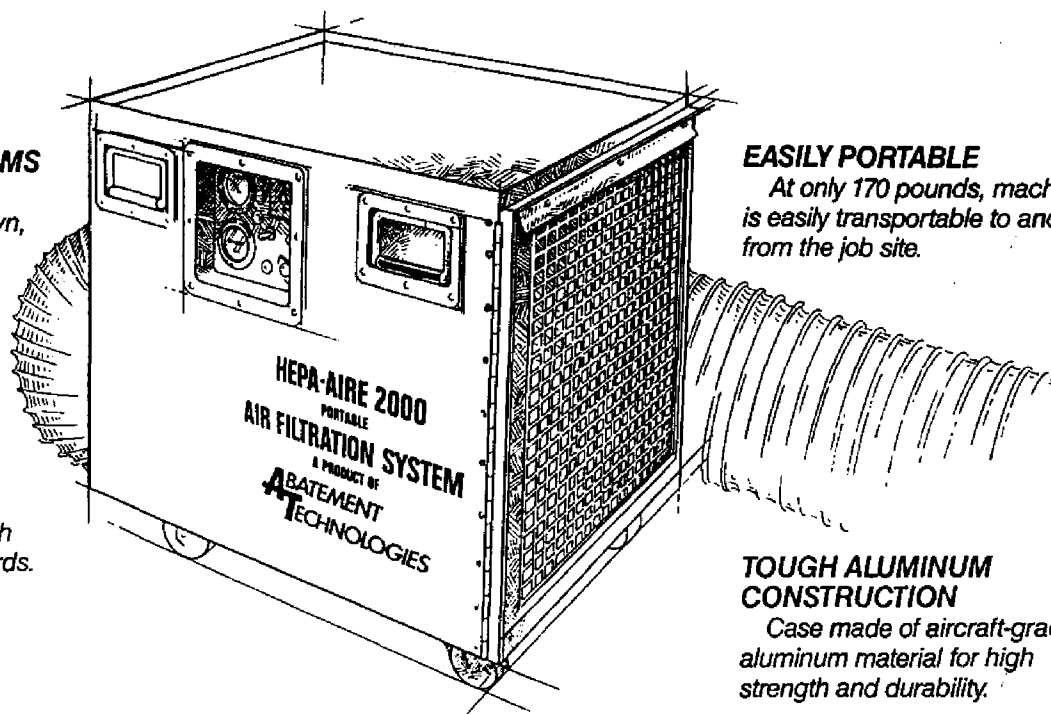
Continually monitor for clogged filter, unit shut-down, by-pass air movement and overload.

EASILY PORTABLE

At only 170 pounds, machine is easily transportable to and from the job site.

MEETS OR EXCEEDS STANDARDS

Components comply with ANSI, UL and NEC standards.



HIGH-EFFICIENCY FILTRATION

Three-stage, lock-in filter system is 99.97% efficient in trapping fibers down to 0.3 microns.

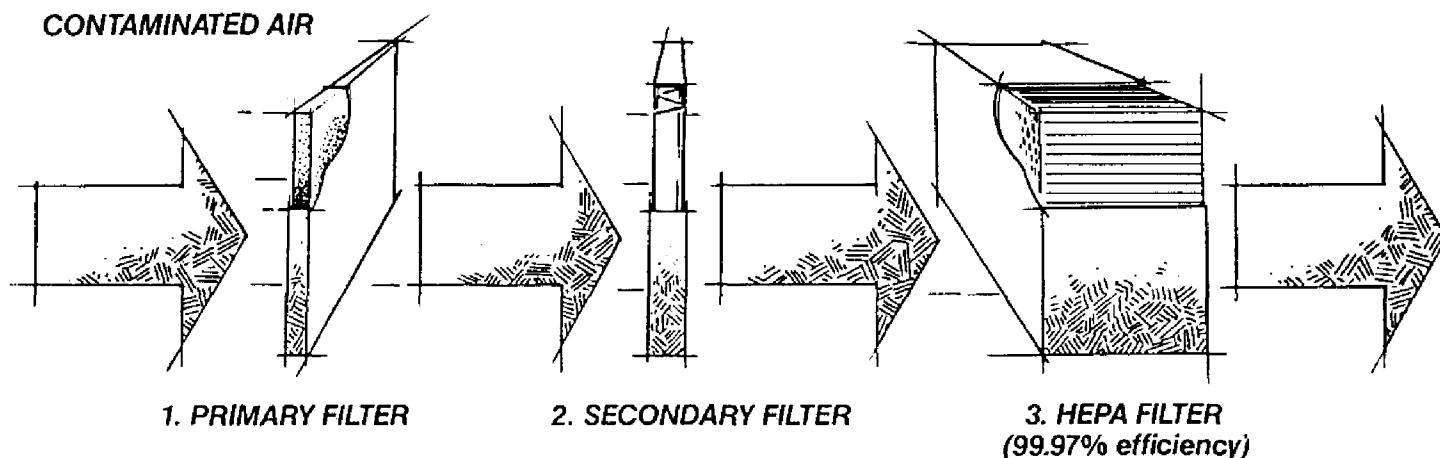
TOUGH ALUMINUM CONSTRUCTION

Case made of aircraft-grade aluminum material for high strength and durability.

BUILT TO LAST

Seams are computer-robot welded for air-tight performance and long, trouble-free working life.

UNIQUE 3-STAGE FILTRATION SYSTEM.



CALL OR WRITE TODAY FOR MORE INFORMATION

ABATEMENT TECHNOLOGIES P.O. Box 930416 • Norcross, GA 30093 • (404) 934-5115

UCC 006406

AD-SAFE Asbestos Removal Products



Spray Adhesive/Adhesive Remover

All purpose spray adhesive is an economical alternative to tape for bonding polyethylene sheeting to walls and other surfaces. It adheres well to various surfaces including wallboard, brick, wood, vinyl, foam, glass, cloth, metal and rubber. Adhesive provides a water-resistant bond with quick tack, no wrinkling, and flexibility. Adhesive remover is chemically compatible with spray adhesive, providing ease of removal without damage to the bonded surfaces. Both products are packaged in 16 oz. net wt. cans.

AS100 Spray Adhesive, case of 12 ea. - 16 oz. cans

AS150 Adhesive Remover, case of 12 ea. - 16 oz. cans



Super Water-Wetter Surfactant

Super Water-Wetter is a deep-penetrating wetting agent effective in pre-wetting asbestos-containing materials during removal work. When proportioned with water this product greatly reduces airborne asbestos fibers. Super Water-Wetter is especially effective in glove bag work.

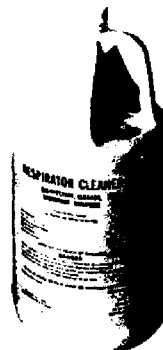
AS200 Super Water-Wetter Surfactant, case of 6-1 gal. bottles



Disposable Bath Towels

Disposable 20" x 40" towels replace cotton towels for use after decontamination showers. Packed 300/case.

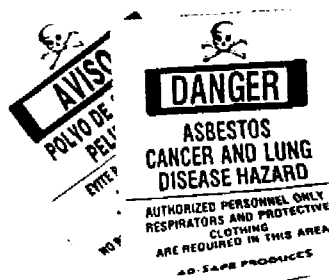
AS400 Disposable Towels, 20" x 40", case of 300



Cleaner/Disinfectant Concentrate

AS300 is a highly effective cleaner, sanitizer, deodorant and disinfectant for respirators and other personal protective equipment. Cleaning, sanitizing and disinfecting are accomplished in a single operation by mixing 5 oz. of AS300 with 1 gallon of water.

AS300 Cleaner/Disinfectant concentrate, case of 6-1 gal. bottles



Asbestos Warning Signs

Constructed from a durable, rigid yellow vinyl material, 14" x 20" warning signs are printed in black letter with legend in accordance with OSHA requirements. Available in English and Spanish.

AS510 Warning Signs, English, case of 25

AS515 Warning Signs, Spanish, case of 25



Asbestos Caution Labels

Yellow 3" x 5" self-adhering vinyl labels with black legend are used to label containers of asbestos materials in accordance with EPA requirements. 1,000 per roll.

AS520 Caution Labels, case of 4 rolls



Barrier Guard

Yellow 3" x 1,000' polyfilm strip is used to designate an asbestos work or exposure area. Legend reads:

Danger Danger
Asbestos - Do Not Enter
AS530 Barrier Guard, case of 8 rolls

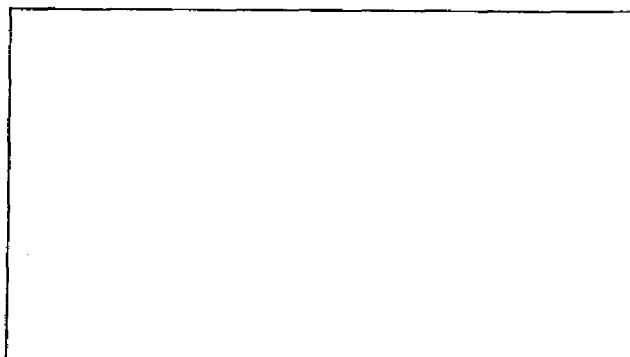
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UCC 006407

Critical Systems

**Manufacturing and Service
for the Asbestos Abatement Industry**

- ***Air Burst-16***
- ***Mini Water***
- ***Quad Air***
- ***Ram Wet***
- ***RediLight***
- ***6K***
- ***Little Giant***



**THE NEW 6K NEGATIVE
AIR PRESSURE SYSTEM**

Critical Systems • 2828 Broad • Houston, Texas 77087
(713) 649-4554

WV-0204 #41

STANDARD MAINTENANCE PROCEDURE

NO.: D-12
PAGE: 1 of 5
EFFECTIVE: 05/04/85
REVIEWED/REVISED: 07/16/85

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING INSULATION MATERIAL

1.0 PURPOSE

- R 1.1 To protect the health and safety of employees directly involved and others who may be exposed to dust/fibers in the immediate area of asbestos-containing insulation material removal or demolition.
- R 1.2 To provide a standard method of safe removal and handling of asbestos-containing insulation material in compliance with Plant Procedure I-B-8 and OSHA 19 CFR 1910.1001.
- A 1.3 To provide a standard method of disposal of asbestos-containing insulation material from the plant, in accordance with E.P. Department guidelines.

2.0 SAFETY

- R 2.1 Breathing asbestos dust may be harmful.

3.0 EXPOSURE LIMITS

- 3.1 Employee 8-hour time-weighted average exposure to airborne concentrations of asbestos fibers shall not exceed two (2) fibers, longer than 5 micrometers, per cubic centimeter of air.
- 3.2 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.

4.0 PROCEDURE

- R 4.1 Caution signs will be posted at all approaches to areas where removal, demolition or handling of asbestos-containing insulation material is being performed.

STANDARD MAINTENANCE PROCEDURE

NO.: D-12
PAGE: 2 of 5
EFFECTIVE: 05/04/85
REVIEWED/REVISED: 07/16/85

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING INSULATION MATERIAL

- 4.1.1 The signs will conform to 20" x 14" vertical format.
- 4.1.2 The signs will state:

ASBESTOS
DUST HAZARD
BREATHING ASBESTOS DUST MAY BE HAZARDOUS TO YOUR HEALTH
AVOID BREATHING DUST
WEAR ASSIGNED PROTECTIVE EQUIPMENT
DO NOT REMAIN IN AREA UNLESS YOUR WORK REQUIRES IT

- 4.2 An appropriate barricade, using colored tape for example, will be erected around the perimeter of outdoor areas as a supplementary, protective measure to discourage unauthorized entry.
- R 4.3 Insofar as practicable, demolition, removal or handling of asbestos-containing insulation will be performed while the material is in a sufficiently wet state to prevent emission of airborne fibers exceeding the exposure limits.
- R 4.4 Removed insulation will be wetted and placed directly into labeled plastic bags or other suitable containers.
- R 4.5 In cases where this is not practicable, place plastic sheeting beneath the job site, mist spray the removed insulation with water, then place in plastic bags.
- R 4.6 When temperatures are below freezing, vacuuming or sweeping will serve as an effective alternate cleanup method. Sweeping compound will be applied to the work area to prevent dust generation when sweeping.

STANDARD MAINTENANCE PROCEDURE

NO.: D-12
PAGE: 3 of 5
EFFECTIVE: 05/04/85
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UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING INSULATION MATERIAL

- R 4.7 Containers used for disposing of removed insulation will bear a caution label readily visible and legible which states:

CAUTION
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
BREATHING ASBESTOS DUST MAY CAUSE SERIOUS
BODILY HARM

- 4.8 All external surfaces will be maintained free of accumulation of asbestos fibers, if, with their dispersion, there would be an excessive concentration. Scaffolds used for this work will be cleaned.

- R 4.9 Asbestos waste, scrap, debris, bags, containers, equipment and contaminated disposable clothing for disposal will be collected and disposed of in sealed impermeable bags or other closed impermeable containers to an approved site.

- A 4.10 All pipe or equipment insulated with asbestos containing insulation will be stripped before taking to Salvage or Investment Recovery.

5.0 PERSONAL PROTECTIVE EQUIPMENT

- 5.1 Respiratory Protection - Employees engaged in the spraying (wetting-down) of asbestos, the removal; in the 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 as follows:

STANDARD MAINTENANCE PROCEDURE

NO.: D-12
PAGE: 4 of 5
EFFECTIVE: 05/04/85
REVIEWED/REVISED: 07/16/85

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING INSULATION MATERIAL

- 5.1.1 A reusable or single use, air purifying respirator may be used to reduce exposure below permissible limits, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed no more than ten times the PEL limits. This consists of the Comfo II with type "H" filter.
- 5.1.2 A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce exposure below permissible limits when the ceiling or the 8-hour time-weighted average airborne concentrations are reasonably expected to exceed 10 times those limits.
- 5.2 Special Clothing - The supervisor shall provide and require use of special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed. Contaminated clothing should not be stored in lockers. A daily change is mandatory, more frequently, if conditions warrant.
- 5.3 Laundering - Laundering of asbestos-contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of prescribed exposure limits. Those performing laundering of asbestos-contaminated clothing must be informed of all requirements listed in Section 5.0, Personal Protective Equipment. Contaminated clothing shall be transported in sealed impermeable containers and labeled in accordance with Section 4.7. If disposable coveralls are used, they should be placed into containers with asbestos for disposal.

STANDARD MAINTENANCE PROCEDURE

NO.: 0-12
PAGE: 5 of 5
EFFECTIVE: 05/04/85
REVIEWED/REVISED: 07/16/85

UNION CARBIDE CORPORATION
Solvents and Coatings Materials Division
Texas City, Texas

SUBJECT: REMOVAL AND HANDLING OF ASBESTOS CONTAINING INSULATION MATERIAL

6.0 TRAINING

- R 6.1 All insulators will be trained annually on:
- 6.1.1 Hazards
 - 6.1.2 Controls
 - 6.1.3 Monitoring
 - 6.1.4 Regulations
 - 6.1.5 Personal Protective Equipment
- R 6.2 All other maintenance employees will be trained every three years.
- 6.3 Training records will be maintained by the Maintenance Department with a copy to the Safety Department.

ID#7253A/mjb