

Material Handling and Storage

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Glove-Bag Removal of Asbestos Pipe Insulation

**PLAINTIFF'S
EXHIBIT
CEL-705**

PURPOSE: The purpose is to isolate small sections of piping, valves, fittings, elbows, etc., so that asbestos containing insulation may be removed from the pipe while minimizing the chances of asbestos fiber becoming airborne outside the bag.

DESCRIPTION: The "glove-bag" method of removing pipe insulation and packing containing asbestos materials is a proven system offering safety and economy. It is a generalized system that must be properly adapted to each situation. Its effectiveness will be determined by the users' knowledge of the goals of the procedure, the procedure itself, and a generous dose of common sense. Be sure to analyze each job situation in this light before starting the work.

MATERIALS AND EQUIPMENT:

- A. Glove-Bag: Disposlene or equivalent design (vertical or horizontal chambers)
- B. HEPA Vacuum: High Efficiency Particulate Air filtration vacuum unit, Tornado Tox Vac or equivalent. Wiring must include a three wire system and ground fault circuit interrupter for safety of operation.
- C. Respirator: Dual HEPA cartridge negative pressure respirator, Willson 1600 (full-face), Willson 1200 (half-mask), powered air purifying respirator (PAPR) Racal Powerflow 7 system with single HEPA cartridge, Scott full face fresh air supplied respirator, or Scott air pacs. Self contained breathing apparatus or equivalents (NIOSH approved).
- D. Disposable Clothing: Tyvek, Duraguard or Poly Pro disposable coveralls; hoods and booties (separate or as part of coveralls).
- E. Asbestos Disposal Bags: Six mil thickness with asbestos warning printed or pasted on bag.
- F. Water Pump Sprayer: One to three gallon capacity.
- G. Surfactant: Critical Services wetting agent or equivalent.
- H. Duct Tape: 2" or 3" width, preferably 3".
- I. Stapler: Suitable for penetrating plastic.

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MATERIALS AND EQUIPMENT: (Continued)

- J. Wettable Cloth: Lag-Kloth No. 6426ABC or equivalent.
- K. Barrier Tape: Yellow/orange plastic with Asbestos warning in black lettering.
- L. Warning Signs: White and red with black and white on red lettering stating "Danger Asbestos, Cancer and Lung Disease, Authorized Personnel Only. Respirators and Protective Clothing Are Required in This Area".
- M. Bone Saw: Disposable or reusable.
- N. Razor Knife: Disposable or reusable.
- O. Damp Rag(s): To wipe pipe clean of asbestos particles.
- P. Wire Snips: To cut wire or metal bands.
- Q. Metal Drum(s): 55 gallon capacity, open top, with lid and clamp with Danger Asbestos label (drums optional).
- R. Designated Shower: Within Unit Control Building in case of accidental contamination.
- S. Brush: Nylon bristle only (no wire bristle brush)!
- T. Pail of Water: To wet additional rags and clean tools after job.
- U. Burlap Bag: To place inside glove-bag to place aluminum jacketing in to avoid cutting plastic with sharp ends.

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PROCEDURE: The following steps, if done with care, attention to detail, and common sense, will isolate small sections of piping, valves, fittings, elbows, etc., so that asbestos containing insulation may be removed and minimize airborne fibers outside the glove-bag. Note: Two workers are required for each job site.

1. Isolate the area in which removal will take place by placing barrier tape at least 20 feet from job site. A wider area may be blocked off with barrier tape at discretion of foreman. Note: Check in with Unit Shift Supervisor on what is to be done and approximate duration of job before putting up barrier tape and warning signs. The Asbestos Competent Person, Celanese or Arthur Brother or his/her designee will start log entry at this time.
2. Place asbestos warning signs on all sides of work area so they can be easily read.
3. Put on respirators, disposable coveralls, hood, booties, and gloves. Wear minimum clothing underneath as required for comfort. If clothing is worn underneath, ensure that disposable clothing is sealed with duct tape at wrist, ankles, neck area, and around respirator.
4. Double-check pipe, valve, etc. to ensure it is not too hot to work on (temperatures of 120°F or greater can cause workers burns and plastic to melt).
5. Check HEPA vacuum to prevent circuit overload from hampering work once in progress. If circuit trips, do not proceed until sufficient power is secured.
6. Determine area of pipe, etc., that glove-bag will enclose. Wrap minimum of 3" width section with duct tape for both ends of glove-bag that will attach to pipe. This will allow a solid, sealed surface to attach the glove-bag to and allow removal of bag with minimum disturbance to remaining insulation. If aluminum jacketing covers the insulation, tape the overlap to hold aluminum in place and remove all screws. To keep aluminum from cutting glove-bag during removal place a burlap sack inside glove-bag for aluminum to be slid into.
7. Cut sides of bag to fit (plus 2") around pipe or valve to be serviced (horizontal glove-bags only).
8. Put all tools in tool pouch inside glove-bag.
9. Start personal and area air samplers.

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PROCEDURE: (Continued)

10. Attach glove-bag to work site by placing slit sides up to pipe and wrapping flaps around pipe. Fold overlap across top and staple about every 2 inches. Seal over this area, along seam, with 3" duct tape. Folds and tape should be free of wrinkles or air pockets. Leave enough slack at top of bag to work fully around pipe without stretching bag or seals.
11. Seal edges of glove-bag around pipe to make an airtight seal using 2" or 3" duct tape.
12. Make a small + type slice in bag to allow tip of amended water sprayer nozzle to be inserted. (This slit should be about 3" above the top of glove ports or whatever side is most convenient for workers.) Also, this opening will be used to insert end of the HEPA vacuum hose or attachment. Each time hole is used, reseal immediately with duct tape.
13. Thoroughly wet work site inside bag with amended water. Do not use excessive amount which could cause the bag to fall or tear.
14. Place arms in armholes of gloves. Remove aluminum jacketing and place in burlap sack. Thoroughly wet insulation. Cut wire holding insulation in place and carefully remove asbestos from pipe. Continue wetting until all insulation is removed. (One worker removes while second worker simultaneously wets material.)
15. Use damp rag to wipe exposed pipe clean of all visible foreign material. Additional wetting of pipe may be necessary to remove all visible materials. It may be necessary to use the wet nylon bristle brush also. Rinse and damp rag wipe pipe after brushing.
16. Thoroughly wet-clean all reusable tools with amended water and wash down side of bag so all visible debris collects at bottom of the bag.
17. Place tools in one or both gloves and turn glove(s) inside out while holding to tools. Twist the glove above the tools tightly, tape with 2" duct tape in two places about 1" apart. Cut glove between taped area and place aside to be cleaned later. Tools may also be removed in tool pouch which is in glove-bag using the above method.

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PROCEDURE: (Continued)

18. Place HEPA vacuum attachment in opening of bag, suck air out of bag until bag collapses. Tape over hole in bag when hose is removed. Do not suck water in vacuum unless vacuum is set up to be used in "wet service".
19. Cut glove-bag loose across top (do not pull or tear). Remove glove-bag from pipe, close and seal with 3" duct tape.
20. Place used glove-bag in 6 mil, labeled, plastic disposal bag. Open tool pouch inside disposal bag and rinse with clean water from pail or amended water from sprayer allowing run-off to go into bag. Dry tools and place rag into disposal bag. Twist bag closed and double seal using duct tape. Place in labeled, plastic lined, open top 55 gallon drum or second 6 mil, labeled plastic disposal bag and seal with duct tape.
22. Use wettable cloth or encapsulant to ensure that ALL DAMAGED SURFACES of the insulation are sealed. Turn off personal and area air samplers after surfaces are sealed.
23. Respirator may be removed at this time.
24. Take down barrier tape and signs. Return these and HEPA vacuum to proper storage. Notify the unit Shift Supervisor that the job is completed.
25. Return respirators to proper location for cleaning, charging, and/or testing, bagging and storage.
26. Take bags of waste asbestos to Waste Disposal Operator for proper final disposal in landfill. Follow all legal requirements for landfill disposal.
27. Complete log entries and turn in to Foreman/Supervisor.

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