

IM-90-02

OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION
TECHNICAL SERVICES SECTION

TECHNICAL INFORMATION

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Anthophyllite, and Actinolite

Index:

Asbestos removal-negative-air glove bags.

Subject:

This is an inspection/consultation guide to evaluate the setup and operation of negative-air glove bags used in place of negative pressure enclosures. It is intended to supplement the information contained IMF-89-38

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NEGATIVE-AIR GLOVE BAGS

Setup and Operation

1. When setting up the bag, tape is **placed on the inside** of the bag, over the place where the makeup air slit will go. (After setup is complete, the makeup air slit is cut into the tape. The tape prevents the slit from "running".)
2. A one-foot square plastic flap is taped over this piece of tape during setup and before cutting the makeup air slit.
3. To prevent the bag from collapsing, supports can be made from pieces of No. 9 wire coil. The wire ends are taped together to prevent puncturing of the bag.
4. Two mechanisms to establish negative air in the bag are a backpack HEPA-filter vacuum and a HEPA-filter powered air-purifying respirator (PAPR):

- a. The backpack vacuum would require a diverter T between the bag and the vacuum to reduce the volume of air going through the bag. With a diverter T, about 60 to 90 cubic feet per minute (cfm) will be drawn through the bag.
- b. The PAPR that Brand Company uses is a Racal brand. The HEPA-filter is of waterproof construction. The filter is mounted inside the bag. The battery pack remains on the outside of the bag with the fitting inserted through a snake-bite M cut in the bag. The filter is then threaded into the fitting.

To prevent accumulation of debris on the filter, the PAPR battery pack can be suspended from the bag with tape, which can allow the inside filter element to point downward. A variation of this PAPR setup is to insert flexible hose between the inside filter element and the PAPR battery pack. This variation might be **used if mounting the PAPR battery pack on the glove bag interferes with the operation.**

5. The makeup air slit and vacuum port are located at about the same height as the glove sleeves, and opposite each other (see diagram). If they were any lower, a breach in the bag may occur when sealing off the bagged materials after removal.
6. After the negative-air bag is set up with the vacuum, the makeup air slit is cut from inside the bag. The knife is stored in the tool pouch.
7. After removal is complete, the bag is collapsed by blocking off the makeup air slit. The bag is then twisted (below the makeup air and vacuum ports) and sealed with tape to keep the asbestos materials in the bottom of the bag, just as with a standard glove bag.
8. The vacuum setup is then removed from the bag. If a PAPR vacuum setup is used, the filter element can be stored in the tool pouch and used in subsequent negative-air bag removals.

Testing

1. The simplest way to check if the negative-air bag is working is to block off the makeup air slit. The bag should collapse. The rate of collapse will depend on the size of the vacuum used. A bag with a backpack vacuum would take less than ten seconds to collapse. One with a PAPR vacuum would take about a minute to collapse.
2. Ventilation smoke tubes can also be used. Smoke should be applied at the makeup air slit and at other locations where leakage could occur.

Enforcement

Brand Company indicated that correct operation of the negative-air bags results in operator exposures at clearance levels (0.01 fibers per cubic centimeter of air). Keeping exposures at clearance levels is appropriate if the negative-air glove bags are being used outside of the containment.

Federal OSHA determined that the use of negative-air glove bags per Brand Company-procedures "meets the requirement for establishing a negative-pressure enclosure pursuant to 29 CFR 1926.58(e)(6), provided that all of the other provisions of the construction asbestos standard are met." Therefore, an employer can be cited for not establishing an effective negative-pressure enclosure under 29 CFR 1926.58(e)(6) if:

1. The methods outlined in IMF-89-38 are not complied with; or
2. The setup and operating guidelines in this memo are not complied with; or,
3. The operation of the negative-air bag outside of the negative-pressure enclosure results in operator exposures above clearance levels (0.01f/cc), provided these elevated levels can be linked to improper negative-air bag setup or operating procedures, and not from another source.

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