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Operating Instructions for WallChek Sampler

Purpose:

The purpose of the WallChek is to non-destructively or non-invasively assess microbial contamination in a wall cavity (i.e., sampling behind a switch plate).

Principle:

The WallChek is a hollow cylindrical tube 2.5 inches in length and 1 inch in diameter. One end of the tube is machined to attach to the Air-O-Cell cassette. The other end is sealed, except for a ¼ inch tapered hole into which a 4-inch section of ¼ tygon tubing is inserted. The tubing has a beveled end to ensure proper airflow when inserted into a wall cavity.

The Air-O-Cell cassette is a particulate sampling cassette designed for the rapid collection and analysis of a wide range of airborne aerosols include mold spores, pollen, insect parts and skin fragments. The Wall Chek sampling device is useful in providing rapid analysis of airborne contaminants in indoor air quality testing, allergy testing and flood restoration. The WallChek is used in conjunction with an Air-O-Cell Cassette permitting access and information about the microbial composition of a wall cavity.

Materials:

Air-O-Cell Cassette
Aerotech Vacuum Pump
Rotameter
Flexible Tubing
Isopropyl Alcohol
Zip Lock Bag
Water

Procedure:

1. Choose a wall cavity that is to be checked. Punch a ¼ inch hole 4 to 6 inches from the floor with the scratch awl. This can be done in a non-conspicuous location such as just behind the top edge of a baseboard or switch plate. (Take special care not to pound on the awl penetrating the wall as this could aerosolize dust from within the wallboard).
2. If the wall cannot be penetrated with the scratch awl (i.e. Wood Paneling), a low-speed, cordless drill can be used. (**WARNING:** High-speed drilling may induce aerosolization of gypsum dust).
3. Locate the vinyl tubing in the WallChek kit. If there is not already an O-ring on the tubing, place one ≈1.5 inches from the beveled end.
4. Place a black disposable cap over the beveled end of the vinyl tubing.
5. Gently insert the capped end of the tubing through the penetration until the O-ring makes contact with the wall.
6. While holding the tubing in place by keeping the O-ring snug against the wall, insert the Cap Removal Rod into the tubing and gently apply pressure to remove the end cap inside the wall. (The end cap should fall to the base of the interior of the wall cavity).
7. If not already attached. Insert the non-beveled end of the vinyl tubing into the small hole at the end of the WallChek.

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8. Remove and save the seal from the top of an Air-O-Cell cassette.
9. Attach the top of the Air-O-Cell cassette to the large opening or hole of the WallChek.
10. Remove and save the seal from the bottom of the Air-O-Cell cassette.
11. Attach the bottom of the Air-O-Cell cassette to the adapter that is already attached to the tubing of an electric pump that has been precalibrated to 15 liters per minute.
12. Gently tap on the wall 2 times approximately 4 feet above the sampling penetration.
13. Turn on the pump and draw air at 15 liters per minute for the selected sampling time.
14. Disconnect the WallChek and Air-O-Cell cassette. Replace the seals to the inlet and outlet of the Air-O-Cell cassette.
15. Label the Air-O-Cell cassette and place it in a zip lock bag and ship it to the laboratory within **24 hours**.
16. Rinse the WallChek and tubing with water followed by isopropyl alcohol and thoroughly dry. (Failure to completely dry the unit may adversely affect the next sample).

Quality Control:

1. Sample a non-suspect wall cavity to serve as a negative control.

Limitations:

1. Some fungi with similar spore structure such as *Penicillium* and *Aspergillus* can be identified but may be grouped together as they are indistinguishable from one another.
2. Excessive dust trapped on the cassette may mask or hide mold spores.
3. Excessive moisture present in a wall cavity may inhibit aerosolization of mold spores from surfaces.
4. Failure to follow the directions may lead to erroneous results.

Reference:

WallChek Operating Manual: 1501 W. Knudsen Drive, Phoenix, Arizona 85027