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FUNGAL SAMPLING GUIDE

SAMPLE SUBMISSION & CHAIN OF CUSTODY

It is essential to ensure sample integrity from initial collection to final reporting. This includes the ability to trace possession of the sample from collection point to receipt at the laboratory. A chain of custody (COC) form should accompany all samples submitted to the laboratory. This form contains fields for reporting, billing, sample identification and analyses requested. A copy of the Microbiology Chain of Custody can be viewed & printed from the HPE website www.hpenviron.com.

Sample Containers and Delivery to the Laboratory

All individual sample containers should be properly labeled with the appropriate identifications to prevent sample misidentification. Agar plates, tape, bulk and swab samples should be sealed in zip-lock bags to prevent contamination during transport to the laboratory.

Samples should be delivered to the laboratory as soon as possible after collection because some tests may have very short hold times. Overnight delivery in climate-controlled containers is recommended for those using shipping couriers.

SINGLE-STAGE BIOAEROSOL IMPACTION SAMPLER

The single-stage bioaerosol impaction sampler is an aluminum device held together by 3 spring clamps and sealed with O-ring gaskets. The unit consists of an inlet cone, a jet classification stage, and a base plate. Air is drawn through the sampler and directed through 400 precision-drilled holes and evenly distributed onto the surface of the agar plate located with the device.

Sampling Materials

1. Single-Stage Bioaerosol Impaction Sampler
2. High volume vacuum pump with flow meter
3. Flexible tubing
4. Hand sanitizer or sterile gloves
5. Isopropyl alcohol and gauze pads
6. Zip-lock bags
7. Parafilm tape
8. Sampling Media
    a. Blood Agar (Tryptic Soy Agar w/ 5% Sheep's Blood) for sampling environmental & pathogenic bacteria.
    b. Malt Extract Agar (MEA) for sampling environmental & pathogenic fungi.

Sampling Procedures

1. Prior to sampling adjust the vacuum pump to a flow rate of ~ 28.3 LPM.
2. Wipe all surfaces of the impaction sampler with isopropyl alcohol using the gauze pad.
3. Remove the lid from an agar collection plate & place on the base plate so the dish rests on the three raised metal pins. Cover the plate with the jet classification stage & the inlet cone. Secure the device with the 3 spring clamps, ensure a good seal between each piece.
4. Turn on the vacuum pump for 2 to 5 minutes. The sampling time will depend on the level of suspected contamination in the sampling area.
5. After sampling, unhook the 3 clamps & remove the agar plate. Replace the lid of the plate & label with appropriate sample identification information.
6. Seal the plate with Parafilm & place in a zip-lock bag then place in a cooler with an ice pack. Do not allow direct contact with the ice pack.
7. Record the total sample time (or total air volume) on the chain of custody along with the sample identification.
8. Before taking another sample be sure the sampling device have been properly sterilized.

Quality Control

1. Multiple samples should be collected for comparison studies to include at a minimum an outdoor and complaint sample.
2. A blank unexposed pate should be analyzed with each sampling event to serve as a negative control.
3. Do not use sampling media that has expired, has visible cracks, appears dried out or has been contaminated.

AIR-O-CELL CASSETTE

The Air-O-Cell spore trap sampler is a particulate sampling cassette designed for the rapid collection and analysis of a wide range of airborne aerosols including mold spores, pollen, insect parts, fibers, fiberglass, and skin fragments. This sampling device is useful in providing rapid analysis of airborne contaminants in indoor air quality testing and flood restoration monitoring.

Sampling Materials

1. Air-O-Cell Cassette
2. High volume vacuum pump with flow meter or specialized battery operated pump.
3. Flexible tubing

Sampling Procedures

1. Adjust the sampling pump to a flow rate of 15 LPM.
2. Connect the Air-O-Cell cassette to the sampling pump by removing the tape seal from the round end, connecting the tubing on the cassette, and placing the other end of tubing to the pump intake.
3. Remove the tape seal covering the inlet (rectangular side) and place on the side of the cassette.
4. Turn on the pump and sample for 1 to 10 minutes, depending on anticipated loading.
5. Turn off the pump and replace the seals to the inlet and outlet ports after sampling.
6. Record the total sample time (or total air volume) on the chain of custody along with the sample identification.

ZEFON Recommended Sampling Intervals for the Air-O-Cell Cassette

Environmental Dust Conditions	Sampling Time (min)
Outdoors on a clean windless day	10
“Clean” office environment or outdoors with no visible dust	10
“Indoor” environment, high activity personnel	5
“Indoor” environment, evidence of drywall renovation, or industrial dust	1
“Indoor” environment, visible dust emissions from point sources present	0.5

Quality Control

1. Multiple samples should be collected from comparison studies and should at a minimum always include an outdoor and complaint sample.

BULK SAMPLES

Bulk sampling can provide invaluable information, especially when air sampling is limited or insensitive. It can confirm the presence of microbial activity and identify the actual sources of contamination that will ultimately air in remediation. Any type of environmental materials that include settled dust, sections of wallboard, pieces of duct lining, carpet pad segments, return air filters, fabric, wood, wallpaper, clothing, insulation, etc., can be considered as bulk samples. Bulk sampling can be semi-quantitatively or qualitatively screened or may also be cultured for colony forming units.

Sampling Materials

1. Zip-lock bags or 4 oz. glass jar
2. Sterile cutting tool
3. Gloves

Sampling Procedures

1. Using gloves cut bulk samples aseptically from the source and place in a clean container. The approximate weight should be 25-50 g.

Quality Control

1. Multiple samples should be collected from comparison studies and should at a minimum a suspect and non-suspect sample.

SURFACE SAMPLES

Surface sampling is a non-destructive sampling technique that allows for the determination of possible microbial contamination. Surface sampling is especially useful in sampling valuable or non-transportable materials and is more effective on small, non-porous areas of concern. The two most common types of surface samples are tape sampling and swab sampling. Tape sampling can only provide semi-quantitative or qualitative results for screens. Swab sampling can be semi-quantitatively or qualitatively screened or may also be cultured for colony forming units.

Sampling Materials

1. Sterile swab
2. Tape-lift provided by HPE
3. Gloves
4. Zip-lock bag or Slide Container

Sampling Procedures

1. Surface Samples – Swabs

    a. Remove the sterile swab from the tube aseptically & ensure the swab tip is wetted with buffer.
    b. Gently swab the desired area thoroughly, using a rolling motion.
    c. Insert the swab into the tube sealing the cap tightly.
    d. Place tube in a plastic bag & label accordingly.

2. Surface Samples – Tape Lift
    a. Remove tape lift from slide container and apply adhesive side of the tape to the selected surface, ensure contact.
    b. Label tape-lift accordingly & place in a sealed slide container.

Quality Control

1. Multiple samples should be collected for comparison to include at a minimum a suspect & non-suspect sample.