Particle Impactor Sampling Guide

This method of air sampling involves drawing a measured volume of air over culture media in petri dishes. The petri dishes are incubated in the laboratory so the organisms impacted on the plate can grow. The fungi or bacteria are counted and identified. This method commonly uses the Andersen N-6 Impactor or VP-400. Different media are available from EMSL Analytical, Inc., depending on whether fungi or bacteria are to be identified.

Benefits

1. Fungal cultures can determine whether spores are viable (alive) and allows for more specific identification.
2. Bacterial cultures provide enumeration and identification of viable bacteria present in the air.

Disadvantages

1. Cultures take 6-10 days for the fungal spores to grow and be identified.
2. Even though non-viable spores will not grow using this method, they can be significant, causing allergic reactions or irritation in some people.
3. Since most environmental specimens contain a large number of organisms, each has to compete with others to grow on the media. As a result, fungi and bacteria present in the air may not be as well represented in culture.
4. Some microbes do not grow well or at all in culture.
5. Some organisms are unable to be identified, as they fail to produce spores, or have not yet been scientifically characterized.

How to Request Media and/or Pumps

1. The Sampling Supplies Request form is available from the EMSL Analytical, Inc. website (www.emsl.com). This form can be printed, completed, and faxed to EMSL Analytical, Inc., 856-858-9551, with the pertinent request(s) and client information.
2. The Sampling Supplies Request form can be obtained from Customer service, telephone 800-220-3675, and completed as above.

How to Handle Microbiologicial Media (Agar Plates)

1. Agar plates must be kept refrigerated or on ice until ready to use.
2. The plates must be allowed to warm up to room temperature before taking a sample. (approx. 20 minutes).
3. Do not remove the lid from the plate at any time except during sampling.
4. The plates must be shipped back to EMSL on ice with **OVERNIGHT PRIORITY**. Refreeze and reuse the original icepack (this type of icepack is stable for 24 hours).
5. Adequate packing material must be sent to protect the plates. The weight of the icepack can crush the plates during shipping.
6. Plates must not come into direct contact with the ice, as the tests will be invalid if the media freezes.
7. If there is any delay in sending the agar plates to EMSL, they should be refrigerated until ready for overnight delivery.
8. A Chain of Custody form (available as per the Sampling Request form-see above) must accompany the plates. **Note on the COC the date collected and the date sent to the laboratory.**

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Sampling Procedure

1. Allow agar plates to reach room temperature before use.
2. Attach one end of tubing to the intake of the vacuum pump and the other end to the inlet of the sampler.
3. Calibrate the flow rate of the vacuum pump:
    A. Place an uncovered Petri dish into sampler – DO NOT SUBMIT THIS PLATE AS A SAMPLE
    B. Insert and firmly press down rubber stopper into inlet cone of sampler
    C. Turn on pump and adjust flow until the rotameter is at 28.3 lpm (flow rate is read from the middle of bearing on the rotameter)
    D. Remove stopper and rotameter prior to sampling
4. Wipe all exposed surfaces of sampler with 70% Isopropyl alcohol and allow to air dry.
5. Place a new agar plate on the base plate so that the Petri dish rests on the three raised metal pins.
6. Remove the cover of the Petri dish and place into a sterile sample bag to minimize contamination (available upon request).
7. Assemble the rest of the sampler and secure the inlet cone with the three attached clips.
8. Set timer to appropriate time depending on environmental conditions. **Sampling time is between 2-5 minutes.**
9. Turn on the pump and start the timer simultaneously.
10. When the time is up, turn off the pump and disassemble sampler and place cover back onto agar plate.
11. Secure lid onto petri dish with masking tape or laboratory film. **Avoid using electrical, packing, transparent and duct tape.**
12. Write the sample number on the bottom of the Petri dish.
13. Record all appropriate information on the Chain of Custody.
14. Return samples with an **ICE PACK** to EMSL Analytical for analysis.

Recommendations

1. Wear latex gloves during sampling.
2. Use 70% Isopropyl alcohol to sterilize sampler between each sample taken.
3. Place lid to Petri dish in a sterile bag during sampling.
4. Include an outside sample for a control.

*All supplies are available upon request