

Microbiology Surface Testing

Facility and Surface Testing

Depending on the nature of the surface and what the specific needs are, IDEXX BioResearch Microbiology lab can test contact plates, settling plates, or surface swabs. We are able to test for specific bacteria/fungi or test for the presence of a wide array of bacterial or fungal growth. Identification of bacterial or fungal growth is performed using MALDI-TOF[®] Mass Spectrometry.

Contact Plates (RODAC[™] or HYcheck[™] Contact Slides)

Flat/Smooth Surfaces

Examples: Animal cages, cage racks, laminar flow hoods, incubators, floors, benches, light switches, etc.

For flat or smooth surfaces, contact plates (RODAC[™] Plates or HYcheck[™] Contact Slides) are the preferred sample type. When pressed on the test area, the exposed media forms an impression of the surface collecting any viable microorganisms that may be present. Once analyzed, the level of growth is reported out as Colony Forming Units (CFU). Comparing the level of growth pre and post sanitization will provide insight the efficacy of your sanitization or disinfection programs. Media containing a neutralizing agent will allow microorganism recovery even on freshly sanitized surfaces reducing the chance of a false negative result. Identification of microbial growth by MALDI-TOF MS is also available from contact plates.

Materials

- Contact Plate with neutralizing agent (RODAC plate with D/E Agar BD292646)
- Tape
- Shipping materials

Procedure

Aseptically remove the plate from its packaging. Following the manufacturer's instructions, firmly press the plate onto the surface to be tested taking care not to rotate the plate while pressing. After sampling, label the plate and secure the lid with tape. Once the samples have been collected they should be shipped in an insulated polystyrene container for overnight delivery. Samples can be shipped on cold packs or at ambient temperatures.

Contact Plate Sample Collection

Specific approaches and numbers of samples to collect per facility depend on your preferences. The RODAC plate package insert describes a procedure of making a grid on the floor or area to be tested and sampling from alternating sections of the grid at different time points. This could result in a large number of samples. The more samples tested, the more complete picture of the bacterial load in your facility. Not sure where to begin? Ask our experts about the most effective Microbiology Surface Testing plan for your facility and receive all the support you'll need to monitor with confidence.

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Microbiology Surface Testing

Facility and Surface Testing, continued

Surface Swabs

Irregular/Rough Surfaces

Examples: wire cage lids, filters, hoses, bottles, surgical equipment, etc.

Because not all laboratory surfaces are flat and/or smooth, surface swabs can also be used to detect viable microorganisms. Once collected and delivered to our lab, the swab is inoculated on microbiological media for analysis. The advantage of culture swabs is that they can sample areas that contact plates cannot (small cavities, crevices, etc). The disadvantage is that due to the inherent variability of sampling surfaces with swabs, determining the quantity of growth is not as reliable as with contact plates; results are more qualitative. To quantify the level of growth from a surface swab, the area swabbed should be consistent across samples. Identification of microbial growth by MALDI-TOF MS is also available from surface swabs.

Materials

- Culture swabs with liquid transport medium (BD ESwab BD220245)
- Shipping Materials

Procedure

Aseptically remove the swab from the sealed packaging. Vigorously swab the surface to be sampled, moving the swab at 90° angles where possible, taking care to sample cracks and crevices. Following the manufacturer's instructions place the swab tip in the transport tube and firmly secure the lid.

Once the samples have been collected they should be shipped in an insulated polystyrene container for overnight delivery. Samples can be shipped on cold packs or at ambient temperatures.

Settling Plates

Air Monitoring

Examples: surgical suites, laminar flow hoods, benchtops, incubators, other laboratory spaces.

Microorganisms present in the air can pose problems during surgery, during cell culture experiments, or other laboratory processes. Settling plates offer insight into the levels of viable microorganisms present in the air. Sterile settling plates are left uncovered and inoculated in the test area for a predetermined amount of time. After inoculation, the plates are sent to our laboratory for analysis. The level of growth is reported out as CFU per exposure time. Identification of microbial growth by MALDI-TOF MS is also available from settling plates.

Materials:

- Settling plates (BD 221237)
- Tape
- Shipping Materials

Procedure:

Aseptically remove the plate from its packaging. Following the manufacturer's instructions, place the uncovered plate in the area to be monitored with the agar side exposed to the air. After a predetermined length of time, cover the plate and seal the plate with tape. Record the exposure time on the plate. Once the samples have been collected they should be shipped in an insulated polystyrene container for overnight delivery. Samples can be shipped on cold packs or at ambient temperatures.

Shipping Address & Contact Information

IDEXX BioResearch, 4011 Discovery Drive, Columbia MO 65201

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Microbiology Surface Testing

Animal Drinking Water

Background

Animal drinking water can be a source for pathogenic and opportunistic environmental bacteria and should be tested routinely. Additionally, immune-deficient animals are susceptible to infection from a wide array of environmental bacteria, some of which are present in water system biofilms.

Water from a tap

Materials

- Sterile Water collection tube/bottle. Recommended; 125mL sterile bottle with Sodium Thiosulfate if testing chlorinated water. (Fisher Cat. # 05-719-361)
- Insulated Shipping Container
- Cold Packs

Procedure

To collect the water sample, first label all collection bottles with the date and sample location. Select a faucet that is clean and free of debris. Remove any hoses or aerators and allow the water to run cold for 2-3 minutes. After the water has been flushed, carefully open the sample bottle to avoid contamination, and allow the water to fill the bottle. Fill the bottle to the 100mL line. Tightly secure the lid and prepare for shipping.

Water from a bottle

Materials

- Sterile Water collection tube/bottle. Recommended; 125mL sterile bottle with Sodium Thiosulfate if testing chlorinated water. (Fisher Cat. # 05-719-361)
- Insulated Shipping Container
- Cold Packs

Procedure

To collect the water sample, first label all collection bottles with the date and sample location. Carefully open the collection bottle to avoid contamination and pour the water to be tested into the collection bottle. Fill the bottle to the 100mL line. Tightly secure the lid and cushion the bottles with absorbent material to minimize the chance of breakage during shipment.

Shipping Instructions

Please ship samples overnight in an insulated shipping container with ice packs maintaining a temperature of 4-10°C. Do not allow samples to freeze. Overnight or same day shipping is important to ensure optimal recovery of growth.

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Microbiology Surface Testing

Lab Animal Feed and Bedding

Laboratory animal feed and bedding can be a source for pathogenic and opportunistic environmental microorganisms. Microbiological monitoring can detect a wide array of environmental microorganisms, some of which are present in non-sterile or improperly sterilized feed and bedding. The advantage of microbiological monitoring is that it detects viable microorganisms. Environmental monitoring is particularly useful to researchers working with SPF, Immunocompromised, Axenic/ Germ-Free, or Gnotobiotic animals.

Materials

- Sterile Sample Collection tube (Sterile 50ml screw-top conical tube)
- Insulated Shipping container
- Cold Packs

Procedure

To collect the feed or bedding sample, aseptically transfer pellets of food or bedding into a sterile 50mL conical tube. For rodent diet pellets, 3-4 pellets are sufficient. For rodent bedding 15-25mL is sufficient. Tightly secure the sample collection tube and label appropriately. Once the samples have been collected they should be shipped in an insulated polystyrene container for overnight delivery with cold packs. Additional padding may be necessary to ensure the sample tubes are not damaged during shipping.

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