

Total Aerobic Bacteria, Yeasts and Molds

DOC316.53.01223

Total Aerobic Bacteria (Amber), Yeast and Mold (Red), Total Coliform (Red) and Disinfection Control (Purple)

Paddle Testers

Scope and application: For detection of contamination of equipment that contacts food, cosmetics or pharmaceuticals, boiler and cooling tower water, laboratory surfaces that require aseptic conditions and kitchen surfaces in restaurants and hotels.



Test preparation

Before starting

For accurate results, make sure to read all instructions carefully.

Wash hands thoroughly with soap and water.

Use a dilute bleach solution, bactericidal spray or dilute iodine solution to clean the work area.

Paddle testers have a 12-month shelf-life from the date of manufacture.

Paddle testers are best for use in semi-quantitative screening. Over time, a paddle tester will show a good indication of how the microbial load changes at a specified site.

Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

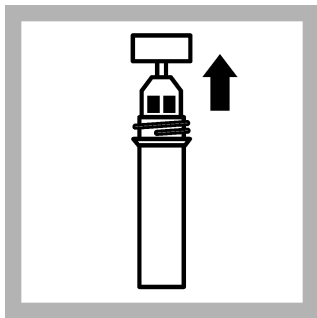
Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheets for disposal information for unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

Items to collect

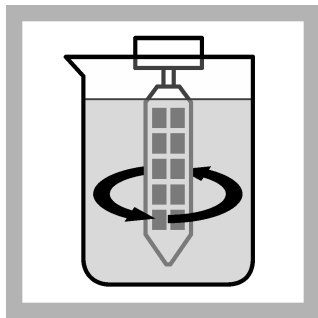
Description	Quantity
Incubator	1
Paddle testers, total aerobic bacteria	1

Refer to [Consumables and replacement parts](#) on page 4 for order information.

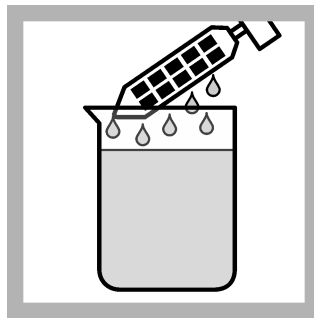
Test procedure—Paddle testers in liquid



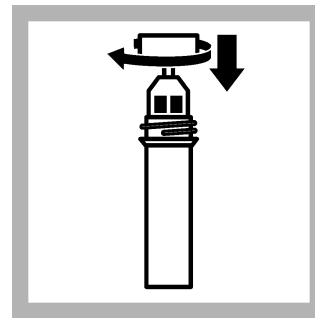
1. Remove the paddle from the vial. Do not touch the media.



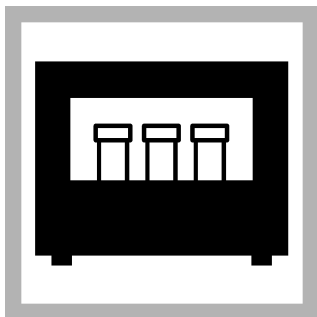
2. Put the paddle fully into a liquid sample. Make sure that the growth media fully covers the paddle. Swirl the paddle in a figure-8 pattern for approximately 8–10 seconds.



3. Lift the paddle out of the sample and let the excess liquid drip. Do not shake the paddle.

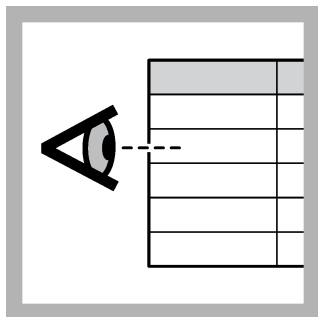


4. Put the paddle back into the vial and put the cap back on.



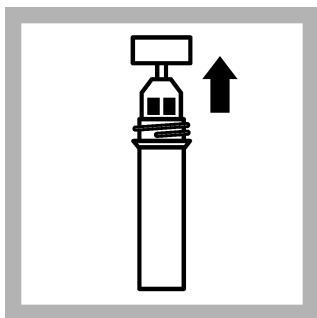
5. Yeast and mold:
Incubate at 25–30 °C (77–86 °F) for 48–120 hours.

Total coliform and disinfection control:
Incubate at 35–37 °C (95–98.6 °F) for 24–48 hours.

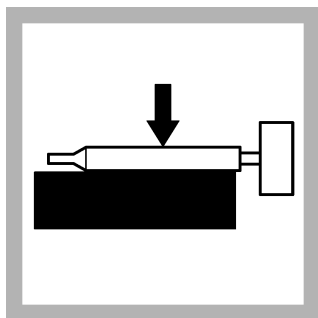


6. Refer to [Interpret the contamination level](#) on page 3 to examine the test results.

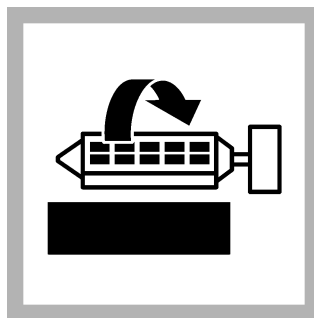
Test procedure—Paddle testers on solid and flat surfaces



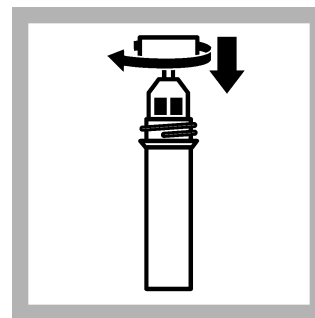
1. Remove the paddle from the vial. Do not touch the media.



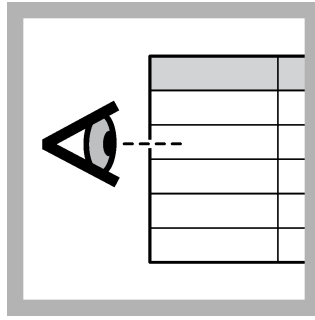
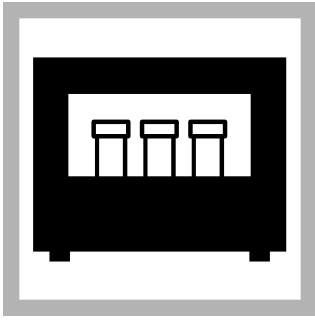
2. Put the paddle on the testing surface.



3. Turn the paddle over and put the other side of the paddle on the testing surface.



4. Put the paddle back into the vial and put the cap back on.



5. Yeast and mold:
Incubate the sample at 25–30 °C (77–86 °F) for 48–120 hours.

Total coliform and disinfection control:
Incubate the sample at 35–37 °C (95–98.6 °F) for 24–48 hours.

6. Refer to [Interpret the contamination level](#) on page 3 to interpret the test results.

Interpret the contamination level

[Table 1](#) shows the density of bacterial colonies. [Table 2](#) shows the density of yeast and mold colonies. Compare the colonies on the paddle tester to the images in [Table 1](#) and [Table 2](#). Select the image that is most similar to the colonies on the paddle tester, then use the density values above the image.

Table 1 Bacterial colony density

100 (10 ²)	1000 (10 ³)	10,000 (10 ⁴)	100,000 (10 ⁵)	1,000,000 (10 ⁶)	10,000,000 (10 ⁷)

Table 2 Yeast and mold colony density

100 (10 ²)	1000 (10 ³)	10,000 (10 ⁴)	100,000 (10 ⁵)	1,000,000 (10 ⁶)

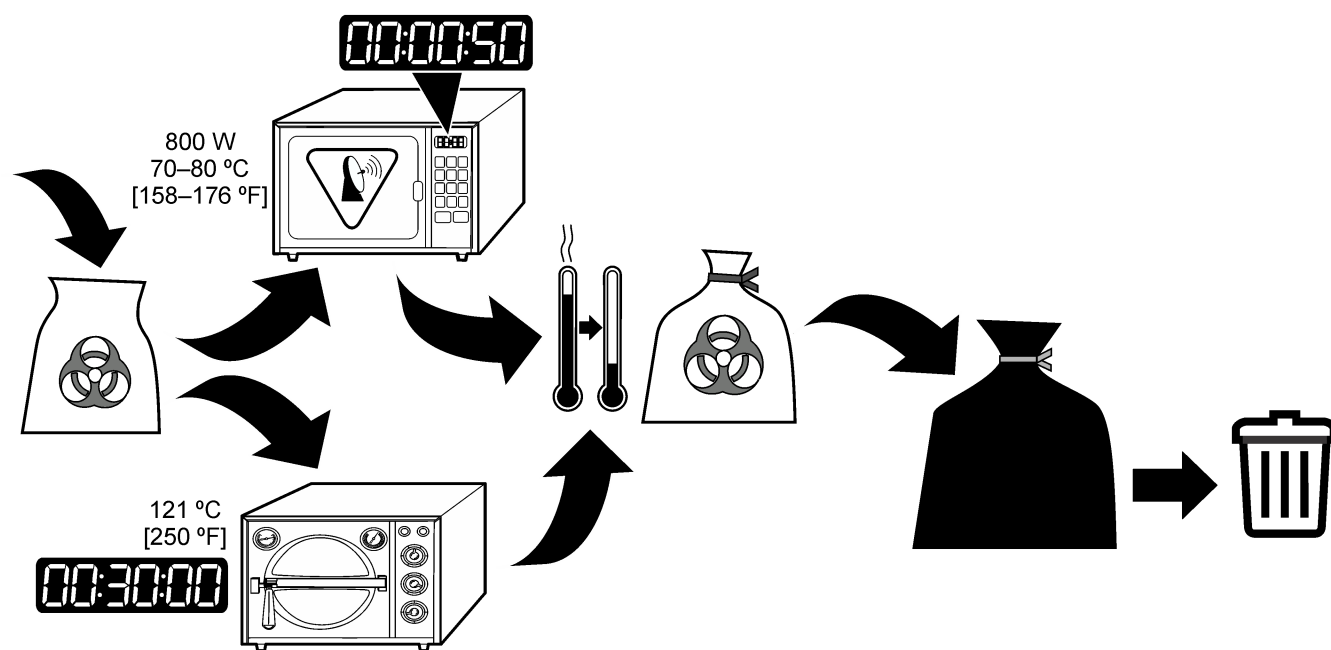
Bacteria disposal

Make sure to kill the cultured bacteria before disposal. Refer to [Bacteria disposal-autoclave-bleach](#) to sterilize with a microwave or an autoclave.

Use one of the methods that follow to kill the cultured bacteria before disposal:

- Hypochlorite (bleach) solution can also be used. Add 10 mL of full-strength hypochlorite (bleach) solution to each test container. If a container has a lid, do not close it too tightly. Put the container in the microwave at 70–80 °C (158–176 °F) for 50 seconds. Wait 30 minutes. Pour the liquid down the drain.
- Kill the cultured bacteria with autoclave pressure. Put the used test containers in a contaminated items bag or biohazard bag to prevent leaks. Do not seal the bag. Put the bag in the autoclave at 121 °C (250 °F) for 30 minutes at 15 lb of pressure. When the bag is cool, seal it and put it into a garbage bag. Make sure to tie the garbage bag tightly.

Figure 1 Bacteria disposal



Summary of method

Use the paddle tester for contamination detection of water samples, solid surfaces and non-viscous liquids in places with unsanitary conditions.

For liquid samples, put the paddle tester fully into the sample. For solid surface samples, put one side of the paddle on the testing surface, and then put the other side on the testing surface. After the liquid or surface sampling, put the paddle tester back into the vial with the cap on. Incubate the sample. After incubation, identify the contamination level, which is based on the colony density of bacteria or yeast and mold.

Consumables and replacement parts

Required media and reagents

Description	Quantity/Test	Unit	Item no.
Paddle testers, total aerobic bacteria/yeast and mold	1	10/pkg	2610810
Paddle testers, total aerobic bacteria/total coliform	1	10/pkg	2610910
Paddle testers, total aerobic bacteria/disinfection control	1	10/pkg	2619510

Required apparatus

Description	Quantity/Test	Unit	Item no.
Laboratory incubator, culture, 110 VAC	1	each	2619200
Laboratory incubator, culture, 230 VAC	1	each	2619202

Optional media and reagents

Description	Unit	Item no.
Dechlorinating Reagent Powder Pillows	100/pkg	1436369

Optional reagents and apparatus

Description	Unit	Item no.
Autoclave, 120 VAC	each	2898600
Biohazard bag	200/pkg	2463300
Battery pack, rechargeable, for portable incubator 12 VDC	each	2580300
Beaker, 100 mL	each	50042H
Bottle, sample, sterilized, 100-mL fill-to line, disposable	12/pkg	2495012
Bottle, sample, sterilized, 100-mL fill-to line, disposable	50/pkg	2495050
Bottle, sample, sterilized, 100-mL fill-to line, disposable with dechlorinating agent	50/pkg	2599150
Portable incubator with 12 VDC power socket	each	2569900
Sterilization Indicator, Sterikon [®]	15/pkg	2811115
Sterilization Indicator, Sterikon [®]	100/pkg	2811199



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