

Presence/Absence

Modified Colitag

Scope and application: For drinking water.



Test preparation

Before starting

Wash hands thoroughly with soap and water.

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

The modified Colitag method is delivered in snap packs. Keep the snap packs at room temperature and away from light. The shelf life and warranty period is 22 months from the manufacture date that is on the snap packs. The product expiration date is on the box and on the individual blisters.

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
Bottle, sterile, modified Colitag with sodium thiosulfate	1
Comparator, modified Colitag	1
Incubator	1
Snap packs, modified Colitag media	1
UV lamp, long-wave, 115 VAC	1

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

Sample collection

- Use a sterile glass or plastic container such as a Whirl-Pak® bag that contains sterilized sodium thiosulfate. The sodium thiosulfate is not necessary if the sample does not contain a residual disinfectant. If a Whirl-Pak bag is used, whirl the bag to close and then fold the wire tabs to make a seal. To prevent leaks, do not twist the wire tabs.
- Open the sample containers immediately before collection and close immediately after collection. Do not put the lid or cap down. Do not touch the lip or inner surfaces of the container. Do not rinse the containers before use.
- To collect a potable water sample from a faucet, spigot, hydrant or pump, let the water flow at a moderate rate for 2 to 3 minutes. Remove any screens or aerators before sample is collected. Do not use faucets or spigots that swivel or leak.
- Keep the snap packs at room temperature and away from sunlight.
- Collect a minimum of 100 mL of sample and keep a minimum of 2.5 cm (1 inch) of air space in the container.
- Write the sample information on the container and start the analysis as soon as possible.
- If the analysis cannot be started immediately, keep the sample at or below 10 °C (50 °F) for up to 6 hours. Do not let the sample freeze.
- Failure to collect and transport samples correctly will cause inaccurate results.

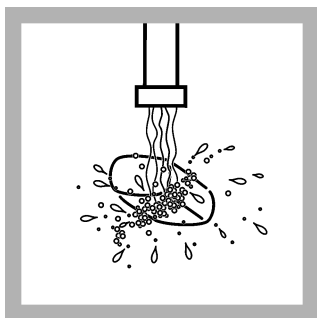
Test procedure

⚠ CAUTION

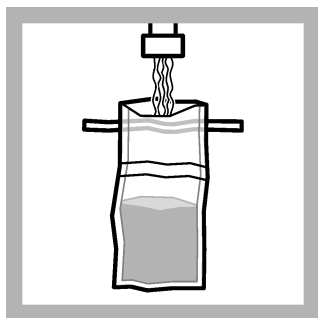


Ultraviolet (UV) light exposure hazard. Exposure to UV light can cause eye and skin damage. Protect eyes and skin from direct exposure to UV light.

Use a long-wave (e.g., 365 nm) UV lamp to confirm the presence of *E. coli*. The sample will fluoresce if *E. coli* is in the sample. No additional confirmation procedure is necessary.



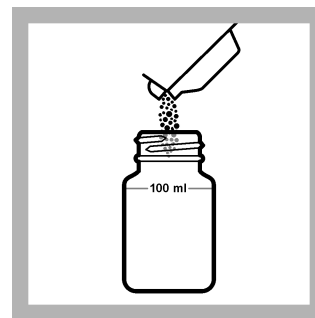
1. Wash hands thoroughly with soap and water.



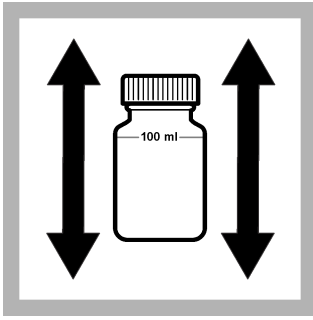
2. Collect 100 mL of sample in a sterile sample container. Use aseptic technique to prevent sample or sample bottle contamination.



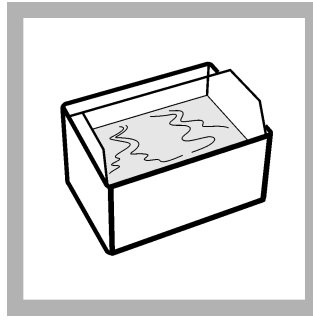
3. Add the sample to the fill line of a transparent and non-fluorescing sample bottle.



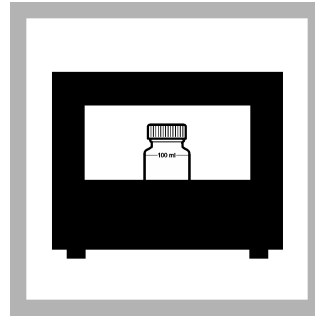
4. Add the modified Colitag media to the sample.



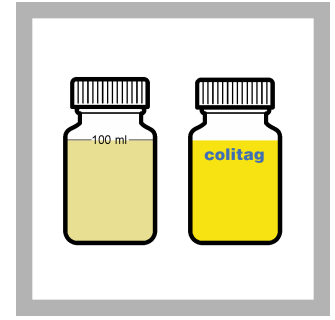
5. Put the cap on the sample bottle. Gently shake to dissolve. Some media does not immediately dissolve. The media will dissolve after incubation starts.



6. If the sample is not between 33–38 °C (91.4–100.4 °F), put the sample bottle in a water bath at 44.5 °C (112 °F) for 7–10 minutes. If the sample is 33–38 °C (91.4–100.4 °F), continue to the next step.



7. Samples with warming pre-treatment Incubate the sample at 35 ± 0.5 °C (95 ± 0.9 °F) for 16–48 hours. **Samples without warming pre-treatment:** Incubate the sample at 35 ± 0.5 °C (95 ± 0.9 °F) for 22–48 hours.



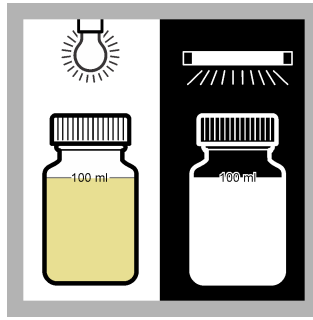
8. After incubation, record the reaction. Compare each sample with the modified Colitag comparator. If the sample is equally as yellow as or more yellow than the comparator, the sample is positive for coliform bacteria.

If the sample is less yellow than the comparator, the sample is negative for coliform bacteria.

If a water sample has some background color, compare the inoculated sample to a blank of the same water sample.



9. Put on UV safety goggles



10. Apply UV light to examine the solution for fluorescence. If the sample fluoresces (a bright blue color shows), the sample is positive for *E. coli*. If the sample does not fluoresce, the sample is negative for *E. coli*.

Bacteria disposal

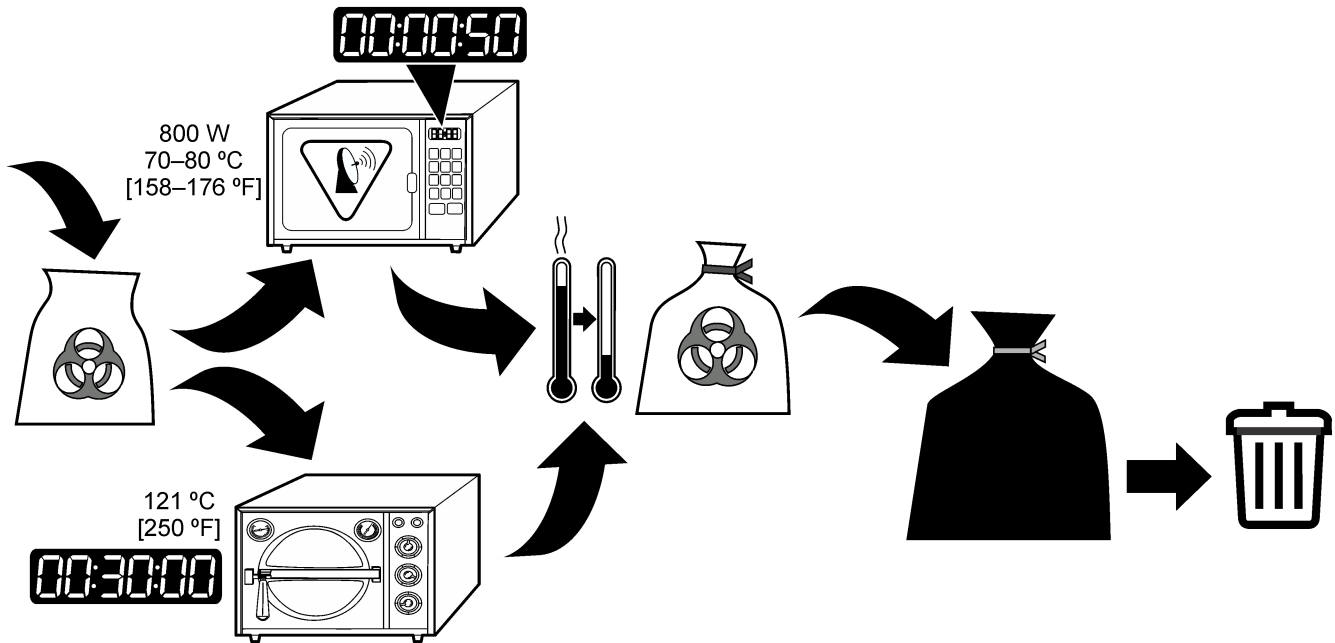
Make sure to kill the cultured bacteria before disposal. Refer to [Figure 1](#) to sterilize with a microwave or an autoclave.

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

- Hypochlorite (bleach) solution can also be used. Add 1–2 mL of 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 10 to 15 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

The modified Colitag method is approved by the USEPA (refer to SM 9221 in *Standard Methods for the Examination of Water and Wastewater*) for use under the Total Coliform Rule and Ground Water Rule for coliform and *E. coli* detection. Mix the media and 100 mL of sample, then incubate and examine for a color change and fluorescence. After incubation, if the sample is yellow, it is positive for total coliforms. To identify if *E. coli* bacteria are in the sample, examine the sample under a longwave UV lamp. If the sample fluoresces, it is positive for *E. coli*.

The Modified Colitag Presence/Absence (P/A) method can find as little as one colony-forming unit (CFU) or *E. coli* and other coliform bacteria in 100 mL of water.

Consumables and replacement parts

Required media and reagents

Description	Quantity/Test	Unit	Item no.
Snap packs, modified colitag media	1	200/pkg	8888005
Snap packs, modified colitag media	1	100/pkg	8888004
Snap packs, modified colitag media	1	20/pkg	8888003

Required apparatus

Description	Quantity/Test	Unit	Item no.
Bottle, sterile, modified colitag with sodium thiosulfate	1	100/pkg	8888006
Comparator, modified colitag	1	each	8888001
Laboratory incubator, culture, 110 VAC	each	2619200	
UV lamp, long-wave, 115 VAC	1	each	2184300

Optional reagents and apparatus

Description	Unit	Item no.
Sampling bags, Whirl-Pak [®] with dechlorinating agent, 180 mL	100/pkg	2075333
UV Lamp, long-wave, portable, 4 watt	each	2415200



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