

VOH 11 Medium

According to World Health Organization's guidelines, there should not be any coliform bacteria in drinking water as it is an indicator of faecal contamination that could cause bacterial infection, thus contributing to diseases related to digestive systems for example diarrhea.

The testing of coliform bacterial in water can be done by preliminary field test kit, VOH 11 Medium, which was developed by Department of Health. The test can be performed by a nonspecialist after being trained to use VOH 11 Medium to detect faecal contamination of drinking water. Then, appropriate actions should be taken for improvement prior to consumption. Using VOH 11 Medium to detect Coliform bacteria in drinking water is very simple, easy and convenient. If the water is contaminated, the culture medium will change from its original red colour to brown, orange or yellow depending on the degree of contamination. Also the presence of turbidity and emergence of gas when shaken the reaction bottle gently confirms positive coliform bacteria contamination.

VOH 11 Medium is used as a reliable tool in detecting coliform bacteria in drinking water if one follows the prescribed instruction and steps as shown in the manual. The result of using VOH 11 Medium according to the finding of research study shows over 84.5% accurate compared to the standard test procedure or Multiple-Tube Fermentation Technique.



Procedure for Field Detection of Coliform Bacteria in Drinking Water Using VOH 11 Medium



➤ Different volumes of culture broth and culture cotton ball (VOH 11) for culturing coliform bacteria.



➤ Essential equipment for bacterial test of drinking water.



➤ Clean hands with cotton wool soaked with 70% alcohol before carrying out the test.



➤ Clean around the cap of the culture medium bottle with cotton wool soaked with 70% alcohol.



➤ Cut away the cap seal with the clean cutter.



➤ Pour the water sample into the culture medium bottle up to mark 4 on the bottle.

➤ Care must be taken to keep the water container about 1 cm above the mouth of the bottle while pouring water sample into it.



➤ Close the bottle cap using the thumb and the index finger.



➤ Mix the water sample with the culture broth or culture cotton ball (VOH 11) by rotating the bottle gently.

- Keep the bottle in the shade at room temperature about 25-40 degree Celsius for 24-48 hours.
- Compare the sample with Colour Standards of V 11

Preservation of VOH 11 Medium

- ⊕ Keep it in a refrigerator at 4-10 °C for future use in 1 year.
- ⊕ Keep it in the room temperature for future use at least 6 months.

Management of used test bottles

- ⊕ Dispose the used media in the bottle into toilet.
- ⊕ Clean the bottle before using it again.

Colour Standards for Coliform Bacteria Test Using VOH 11 Medium



- Bottle 1** Culture medium (clear red) prior to adding water sample.
- Bottle 2** Immediately after adding water sample up to mark 4 on the bottle.
- Bottle 3** After keeping in room temperature (25-40 degree Celsius) for 24-48 hours. This Colour (clear red) indicates no coliform bacteria (-) in water sample are detected. The water is safe for human consumption.
- Bottle 4** After keeping in room temperature (25-40 degree Celsius) for 24-48 hours. This colour (orange-red, turbidity (+), gas) indicates positive coliform bacteria (+) in water sample. The water is not safe for human consumption.
- Bottle 5** After keeping in room temperature (25-40 degree Celsius) for 24-48 hours. This colour (brown-red, turbidity (++) , gas) indicates more positive coliform bacteria (++) in water sample. The water is not safe for human consumption.
- Bottle 6** After keeping in room temperature (25-40 degree Celsius) for 24-48 hours. This colour (yellow, turbidity (+++), gas) indicates heavy contamination of coliform bacteria (+++) in water sample. The water is not safe for human consumption.

World Health Organization (WHO) Guidelines for Drinking Water Quality in the Year of 1993

Organism	Unit	Guideline Value
Coliform Bacteria	MPN / 100 ml.	0
Faecal Coliform Bacteria	MPN / 100 ml.	0

Department of Health (DOH) Guidelines for Drinking Water Quality in the Year of 2000

Organism	Unit	Guideline Value
Coliform Bacteria	MPN / 100 ml.	0
Faecal Coliform Bacteria	MPN / 100 ml.	0

Various methods for management of drinking water which contaminated by bacteria

1. Boiling: Boil water at 100 °C at least 5 minutes and keep it in clean and closed appropriate container.
2. Using Chemicals: Using effective chlorine gas or chlorine powder.(free residual Chlorine in the drinking water after treatment is 0.2-0.5 ppm.)
3. Filtration: Trap bacteria by using certain effective filtrator.
4. Treatment by using UV light or ozone.



ASIANMEDIC CO.,LTD.
 Tel: 02-691-8348, 089-185-8999
 E-mail: sales@asianmedic.com
 www.asianmedic.com

Simplified Technique for Field Detection of Coliform Bacteria in Drinking Water Using VOH 11 Medium

