

Total coliforms/ Escherichia coli by Test P/A & MPN**SM 9223-1997 (2004)**

ADDITIONAL QC REQUIREMENTS FOR THIS METHOD: Certified or Accredited laboratories using this method are assessed to applicable requirements of SM 9020, 9030, 9040, 9050 and 9060

Facility Name: _____ VELAP ID _____

Assessor Name: _____ Analyst Name: _____ Inspection Date _____

Relevant Aspect of Standards	Method Reference	Y	N	N/A	Comments
Records Examined: SOP Number/ Revision/ Date _____ Analyst: _____					
Sample ID: _____ Date of Sample Preparation: _____ Date of Analysis: _____					
1) Are sterile bottles or presterilized plastic bags used for sample collection?	9030 B.18				
2) Are sample volumes not less than 100 mL?	9060 A.4				
3) When sample is collected, does sample bottle have ample air space to facilitate mixing by shaking, before analysis?	9060 A.3				
4) Are samples analyzed on the day of receipt or refrigerated overnight after receipt by the lab?	9060 B.1.b.				
5) Water samples containing humic or other material may be colored. If there is background color, are inoculated tubes compared to a control tube containing only water sample?	9223 A 2.				
6) Are the appropriate commercially available formulations used for the analysis?	9223 B.1				
7) Is the substrate stored according to manufacturer's directions away from direct sunlight?	9223 B.1				
8) Is discolored media discarded?	9223 B.1				
9) Is each lot of media tested for performance by inoculation with three control bacteria: <i>Escherichia coli</i> , a total coliform other than <i>E. coli</i> (e.g., <i>Enterobacter cloacae</i>), and a noncoliform. If <i>Pseudomonas</i> is used as the noncoliform, select a nonfluorescent species.	9223 5, 9020 B. 8. 3)				
10) Is a sterile water control tested with each new lot of media? If the sterile water control exhibits faint fluorescence or faint positive coliform result, is the lot discarded and a new batch of substrate used?	9223 5				

Notes/ Comments:

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11) If using the multi-tube procedure, is the appropriate number of tubes per sample selected and labeled, and are serial dilutions prepared following manufacturer's instructions?	9223 B.2.a				
12) For the multi-tube procedure, is the appropriate volume of sample dispensed into each tube, and mixed well with the substrate?	9223 B.2.a				
13) If the multi-well procedure is used, is substrate added to 100 mL of sample, shaken vigorously, poured into tray and sealed?	9223 B.2.b				
14) If the presence-absence procedure is used, is substrate added to 100 ml of sample in a sterile, transparent, non-fluorescent plastic or borosilicate glass bottle and shaken to dissolve?	9223 B. 2. c				
15) Are trays/bottles/tubes incubated at $35 \pm 0.5^{\circ}\text{C}$ for period specified by manufacturer?	9223 B.2.a-c				
16) After incubation, are tubes mixed by inversion when the color response is not uniform?	9223 B.3.a				
17) Is an appropriate color comparator used to check the chromogenic response for each sample, and are total coliforms considered present when the sample color is yellow and the color intensity is greater than or equal to the comparator?	9223 B.3.a				
18) If a chromogenic response is questionable after 24 hours (or 18 hrs. for Colilert-18), are the samples incubated up to an additional 4 hours and rechecked?	9223 B.3.a				
19) Is an appropriate reference comparator used to check fluorescence for each positive total coliform sample, while examining under a long-wavelength (366-nm) ultraviolet lamp (preferably 6-W bulb)?	9223 B.3.b				
20) If fluorescence is questionable, are samples incubated for an additional 4 hours and rechecked?	9223 B.3.b				
21) Is the MPN value correctly calculated for total coliforms and/or <i>E. coli</i> from the number of positive tubes as described in 9221C OR from the number of positive wells, using the manufacturer's MPN chart?	9221 C, 9223 B.4				
Notes/Comments:					

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22) If using the presence/absence procedure for drinking water, report results as total coliform and <i>E. coli</i> present or absent in 100 mL sample.	9223 B.4				
23) For Drinking Water Compliance Samples, does the laboratory analyzing compliance samples immediately notify the VDH-ODW of all positive results?	1VAC30-40-30				
24) For Drinking Water Compliance Samples, does the laboratory analyzing compliance samples complete the appropriate VDH-ODW Sample Input Form and report the analysis result to the VDH-ODW within three days of completion date of sample analysis?	1VAC30-40-40				
25) Is each lot of media tested for performance by inoculation with three control bacteria: <i>Escherichia coli</i> , a total coliform other than <i>E. coli</i> (e.g., <i>Enterobacter cloacae</i>), and a noncoliform. If <i>Pseudomonas</i> is used as the noncoliform, select a nonfluorescent species.	9223 B 5				
26) Is a sterile water control tested with each new lot of media? If the sterile water control exhibits faint fluorescence or faint positive coliform result, is the lot discarded and a new batch of substrate used?	9223 B 5				

Notes/Comments: