

Easy Guide -Qualitative Analysis of Surface Water/Portable Water with Vial Lab

The TVC and COLI vials were filled with 10 ml of sterile distilled water and 1 ml of water samples was added to each vial. After inoculation, TVC vials were incubated for 48 hours at room temperature of $22 \pm 2^\circ \text{C}$ (TVC vials) and for 24 hours at $37 \pm 0,5^\circ \text{C}$ in a bench thermostat (COLI vials). The starting color is blue for TVC vials and red for COLI vials. In presence of microorganisms, the color of the vials changes to yellow, indicating a positive result. The persistence of the initial color after 36 hours for TVC vials and 24 hours for COLI vials indicates the absence of the tested microorganisms, and consequently a negative result. The color change was monitored by visual inspection at different times after inoculation. The time for color change was used to determine the bacterial load in the sample analyzed using specific MBS correlation tables between time (expressed as hour) and bacterial concentration (expressed as CFU/ml) (Tables 1 e 2).

Table 1. Correlation table for TVC MBS vials for the detection of Heterotrophic Bacteria Count ($22^\circ \text{C} \pm 2^\circ \text{C}$). The correlation between the observed time for color change (expressed as hour) and the contamination (expressed as CFU/ml) present in the sample is shown. The color of the TVC vials change from blue to yellow in presence of bacterial load.

Heterotrophic Bacteria Count ($22^\circ \text{C} \pm 2^\circ \text{C}$)		
Contamination (CFU/ ml)	Time for color change (Hours)	Observed color at the end of the analysis
$>10^5$	8	Yellow
10^4	14	Yellow
10^3	20	Yellow
10^2	25	Yellow
10	31	Yellow
0	> 36	Blue

Table 2. Correlation table for TVC MBS vials for the detection of total coliforms (37°C± 0,5°C). The correlation between the observed time for color change (expressed as hour) and the contamination (expressed as CFU/ml) present in the sample is shown. The color of the COLI vials change from red to yellow in presence of coliforms.

Total coliforms (37°C± 0,5°C)		
Contamination (CFU/ ml)	Time for color change (Hours)	Observed color at the end of the analysis
>10 ⁵	3	Yellow
10 ⁴	9	Yellow
10 ³	15	Yellow
10 ²	21	Yellow
10	27	Yellow
0	> 33	Red