

ENVIRONMENT / WATER ANALYSIS

The use of HettCube incubators to detect the presence of Escherichia coli in drinking water

Escherichia coli (E. coli) is a bacterium that is present in the body of both animals and humans. It is part of the normal healthy intestinal flora. However, if E. coli bacteria are ingested through food or water or come into contact with mucosa, then infections may result and can lead to sepsis. If the bacteria have undergone mutation, they can cause life-threatening diseases (e.g. EHEC) through highly toxic metabolic products.

E. coli plays an important role as an indicator organism in water analysis. If its presence is demonstrated, then it can be assumed that the water sample is contaminated with other faecal organisms. Drinking water must be absolutely free of E. coli, i.e. no organisms present in 100 ml.

Methods of detection

The presence of E. coli is determined by the method given in EN ISO 9308-1:2000 in tryptophan broth after filtration and culture on TTC agar (Fig. 1). If E. coli is present in the broth, then addition of Kovac's reagent will cause a colour change to red (Fig. 2).

Importance of the test for the presence of E. coli in practice

Drinking water is tested at regular intervals to protect consumers. One such test is for the presence of E. coli. The nature and frequency of the tests is laid down in national regulations such as the "Trinkwasserverordnung" [Drinking Water Act] in Germany and the Safe Drinking Water Act in the USA.

Incubation conditions in accordance with EN ISO 9308-1:2000

	Temperature	Duration
Agar	36 ± 2 °C	21 ± 3 h
Broth	44 ± 0,5 °C	21 ± 3 h

Advantages of HettCube incubators

- Maximal validated usable space on a small footprint
- 4.3 inch touch display for intuitive operation
- Very homogeneous and stable temperature, as well as precise temperature control
- True "one-hand-operation" and flexible positioning of the shelves
- Minimal energy consumption of < 0.06 kW/h at 37 °C
- Low noise level of ≤ 44 dB(A)
- Optimized loading capacity through unique accessories and options

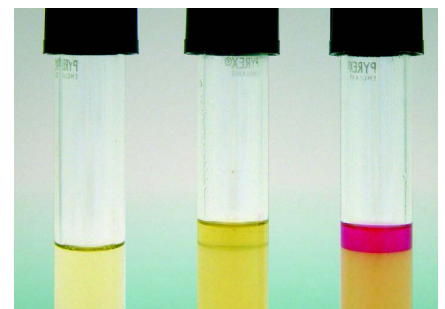
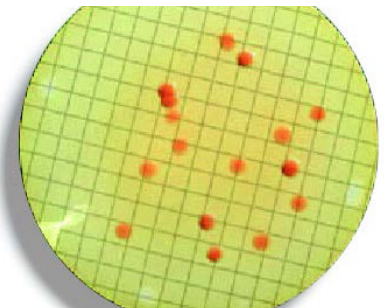


Fig. 1: Demonstration of E. coli (right) in broth, with a negative control (centre) and a background control (left)²⁾

¹⁾ Image by courtesy of the CVUA Karlsruhe

²⁾ Image by courtesy of SIGMA-ALDRICH@daairy products; reference method 1991

Hettich solution

Model	Cat. No.
HettCube 200	62000
HettCube 400	64000
HettCube 600	66000

Model without IVD	Cat. No.
HettCube 200	62001
HettCube 400	64001
HettCube 600	66001