

A-1 Medium (i23002)

Is used for detecting fecal *coliforms* in food and water by MPN method.

Industry: Water / Food

Principles & Uses

A-1 Medium was developed to expedite the recovery of *Escherichia coli* and reduce the incidence of false positive cultures in water samples. This medium is specifically designed for the enumeration of *coliforms*, particularly *E. coli*, to assess water purity. A-1 Medium significantly shortens the time needed for complete identification, recovering *E. coli* from water and food within 24 hours instead of the traditional 72 hours, without the need for pre-enrichment.

This medium allows for a single-step procedure in the detection of fecal coliforms in various sources, including water, seawater, treated wastewater, and foods, without the necessity for prior enrichment in a presumptive medium.

Tryptone provides nitrogen, vitamins, minerals and vitamins. Lactose and salicin are sources of carbon and provides energy. Sodium chloride balances osmotic condition. Trinton X-100 is a surfactant which reduces adhesive sources. Gas production in the Durham tubes is an indicator of the presence of *coliforms*, particularly *E. coli*, providing a rapid and reliable method for assessing water quality.

Composition (gr/L)

Casein enzymic hydrolysate 20, Lactose 5, Sodium chloride 5, Salicin 0.5, Triton X-100 1

Final pH at 25°C 6.9 ± 0.1

Preparation from dehydrated Powder

Suspend 31.5 g of the powder in 1 L of purified water. Mix thoroughly. Dispense into tubes containing inverted fermentation vials. Autoclave at 121°C for 10 minutes.

Note: Prepare a double-strength medium for 10 ml water samples.

Quality Control

Dehydrated Appearance: Cream to yellow homogeneous free flowing powder.

Prepared Appearance: Light amber colored clear solution after cooling to room temperature.

Reaction of 3.15% Solution at 25°C: pH 6.9 ± 0.1

Cultural Response

Prepare the tubes by inserting fermentation vials and adding 10 mL of the medium to each tube. Inoculate the tubes and incubate them at 35 ± 2°C for 3 hours. Then, transfer the tubes to a 44.5°C water bath and continue incubating for 21 ± 2 hours.

Organism (ATCC*)	Recovery	Gas
<i>Escherichia coli</i> (25922)	Good	+
<i>Enterobacter aerogenes</i> (13048)	Poor to good	-
<i>Enterococcus faecalis</i> (19433)	poor	-
<i>Bacillus subtilis</i> (13047)	None/fair	-

*ATCC is a registered trade mark of the American Type Culture Collection.



E. coli and gas accumulated in Durham tube (left), while *E. faecalis* did not produce gas in the Durham tube (right).

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C.

