

## Tetrathionate Broth Base (i23271)

Tetrathionate Broth Base, with added iodine-iodide solution, is used as a selective enrichment medium for the isolation of *Salmonella* from feces, urine, foods and other materials of sanitary importance.

Industry: Food / Clinical

## Principles & Uses

Tetrathionate Broth Base, enriched with iodine-iodide solution, serves as a selective medium for cultivating *Salmonella* species, especially those in low numbers or injured during food processing. This medium adheres to the standards of the United States Pharmacopoeia (USP). Tetrathionate, produced through the iodine reaction with sodium thiosulfate, selectively inhibits commensal intestinal organisms. *Salmonella*, possessing the enzyme tetrathionate reductase, thrives in this environment. To control the growth of *Proteus*, another enzyme-bearing organism, novobiocin is added before iodine. Components like peptone, providing essential nutrients, and Oxgall, inhibiting Gram-positive organisms, play critical roles. Calcium carbonate neutralizes toxic metabolites.

Tetrathionate and excess thiosulfate effectively suppress *coliforms* and other bacteria, allowing tetrathionate-reducing bacteria like *salmonellae* and *Proteus* to multiply. Brilliant green, recommended by the United States Pharmacopoeia, suppresses Gram-positive flora, although its omission might enhance *salmonellae* yields. The resulting culture medium strikingly inhibits unwanted microorganisms while facilitating the growth of *Salmonella*.

## Composition (gr/L)

Pancreatic Digest of Casein 2.5 g, Proteose Peptone 2.5 g, Oxgall 1 g, Sodium Thiosulfate 30 g, Calcium Carbonate 10 g.

Final pH at 25°C 8.4 ± 0.2

## Preparation from dehydrated Powder

Suspend 46 g in 1 litre of purified water, heat briefly to the boil and cool rapidly. **DO NOT AUTOCLAVE**. Prior to use, add 20 ml iodine/potassium iodide solution, if desired 10 ml of a 0.1 % brilliant green solution and if required 0.04 g novobiocin. Avoid any further heating. When dispensing the prepared medium, make sure that any precipitate formed is evenly suspended.

## Preparation of the iodine/potassium iodide solution

Iodine 6 g, potassium iodide 5 g, distilled water 20 ml.

## Quality Control

Dehydrated Appearance: Beige, free-flowing, homogeneous.

Prepared Appearance: Turbid and green with white sediment.

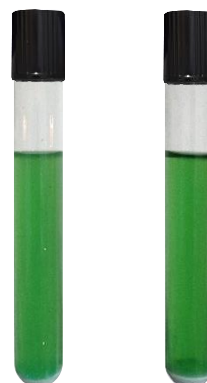
Reaction of 4.6% Solution at 25°C: pH 8.4 ± 0.2

## Cultural Response

Cultural response was observed after 18 - 24 hours of incubation at 35 - 37°C.

Organism (ATCC*)	Inoculum CFU	Recovery	Colonies on MacConkey Agar
<i>Escherichia coli</i> (25922)	10 <sup>2</sup> - 10 <sup>3</sup>	Little or no increase in number of colonies	Pink with bile precipitate
<i>Salmonella Typhimurium</i> (14028)	10 <sup>2</sup> - 10 <sup>3</sup>	Good	Colorless

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



*Salmonella typhimurium* (left). Prepared Culture Media supplemented with Novobiocin, Iodine and Potassium Iodide and Brilliant Green (right).

**Storage**

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