

## 88151 Tetrathionate Broth (TT Broth)

For the selective enrichment of *Salmonella* from various sources.

### Composition:

Ingredients	Grams/Litre
Mixed peptone	5.0
Bile salts	1.0
Calcium carbonate	10.0
Sodium thiosulfate	30.0

Final pH 7.8 +/- 0.2 at 25 °C

Store prepared media below 8°C, protected from direct light. Store dehydrated powder in a dry place in tightly-sealed containers at 2-25 °C. The complete medium (with added iodine) should be used the same day it is prepared, but the sterilized medium base will keep for some weeks at 4°C.

### Directions:

Dissolve 46.0 g in 1 litre distilled water and heat carefully until boiling (do NOT sterilize). Cool to below 45 °C and then add 20 ml iodide solution (5 g potassium iodide and 6 g iodine in 20 ml distilled water) and 10 ml 0.1% brilliant green solution. Mix and fill containers so that any insoluble material is evenly distributed. This broth should be prepared on the day of use.

Inoculate the broth with about 1-2 grams of the specimen and carefully homogenize the mixture. Big particles on the bottom can be prevented by filtering with cotton-wool. Incubate for 12-24 hours at 35°C or 43°C<sup>4,5</sup>. Then sub-culture on to XLD Agar (95586), Bismuth Sulphite Agar (95388) or SS Agar (85640) or similar selective/indicator media for *Salmonella* isolation.

### Principle and Interpretation:

Mixed peptone provides the nitrogen, vitamins and amino acids and is the carbon source. Tetrathionate is produced from thiosulfate by adding iodine to the culture medium. Organisms that reduce tetrathionate, such as salmonellae, luxuriate in the medium while many faecal organisms are inhibited due to the tetrathionate<sup>1</sup>. Members of the *Proteus* group reduce tetrathionate and may consequently impair the value of this medium for the isolation of salmonellae. This disadvantage of the medium is largely overcome by the addition of 40mg/l of novobiocin to each millilitre of the incomplete medium before the addition of iodine<sup>2,3</sup>. Calcium carbonate buffers the sulphuric acid that is liberated when tetrathionate is reduced. Bile promotes the growth of *Salmonella*, but largely inhibits the accompanying bacteria. Brilliant green suppresses primarily Gram-positive bacteria like *Proteus* species. But it should be remembered that *Salmonella typhimurium* and some other salmonellae are also inhibited by this compound.

Cultural characteristics after 18-24 hours at 35°C.

Organisms (ATCC)	Recovery
<i>Salmonella typhimurium</i> (14028)	+++
<i>Salmonella arizonae</i> (13314)	+++
<i>Shigella dysenteriae</i> (13313)	+++
<i>Escherichia coli</i> (25922)	-/+



## References:

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## Precautions and Disclaimer

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