



PRODUCT SPECIFICATION SHEET

Tetrathionate Broth Base (DM353I)

Intended Use

Tetrathionate Broth Base (DM353I) is recommended for selective enrichment and isolation of *Salmonellae* from specimens, in compliance with IP.

Product Summary and Explanation

Salmonella is the common causative agent of mild gastroenteritis to typhoid. It is common contaminant in food and other biological products. This medium supports the rejuvenation of *Salmonella* cells injured by food processing which are incapable of forming colonies on plate, but on injection can cause infection. Tetrathionate Broth Medium was originally described by Mueller⁽¹⁾ and found that the medium selectively inhibit coliforms and permit unrestricted growth of enteric pathogens. The medium is now formulated according to Indian Pharmacopoeia.⁽²⁾ Compendium of Microbiological Examination of Foods⁽³⁾ and Standard Methods for the Examination of Water and Wastewater⁽⁴⁾ specify this medium as enrichment medium for *Salmonella* species. The selectivity depends on the ability of thiosulphate and tetrathionate (formed by addition of Iodine and Potassium iodide) in combination to suppress commensal coliform organisms.^(5,6) Organisms which reduce tetrathionate, such as salmonellae, flourish in the medium whilst many faecal organisms are inhibited.⁽⁷⁾ 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 of novobiocin to each millilitre of the incomplete medium before the addition of iodine.^(8,9)

Principles of the Procedure

Tetrathionate Broth Base contains yeast extract, beef extract and peptone which are sources of carbon, nitrogen, amino acids and essential nutrients, growth factors. Calcium carbonate neutralizes the acidic tetrathionate decomposition products. Sodium chloride helps to maintain the osmotic balance of medium. Sodium thiosulphates are inactivators of halogens and can minimize its toxicity in the testing sample, if any during microbial limit tests.

Formula / Liter

Ingredients	Gms / Liter
Beef extract	0.90
Peptone	4.50
Yeast extract	1.80
Sodium chloride	4.50
Calcium carbonate	25.00
Sodium thiosulphate	40.70

Formula may be adjusted and/or supplemented as required to meet performance specifications

Precautions

1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.
3. Due to presence of calcium carbonate, the prepared medium forms opalescent solution with a white precipitate.

Directions

1. Suspend 77.40 grams of the medium in 980 ml of purified/distilled water.





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- Heat just to boiling.
- Cool below 45°C and add 20 ml iodine solution (iodine - 6 grams and potassium iodide - 5 grams in 20 ml distilled water) and 10 ml of 0.1% brilliant green solution.
- Mix well and dispense in 10 ml quantities in sterile tubes.
- This complete medium should be used on the day of preparation.
- Do not heat after the addition of iodine solution. Use the medium immediately after addition of iodine.

Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Complete medium with added brilliant green and iodine solution - Light green opalescent with white precipitate, on standing the precipitate settles down.
Reaction of % Solution	Not Applicable
Gel Strength	Not Applicable

Expected Cultural Response: Cultural characteristics observed with added brilliant green and iodine solution when sub cultured on Xylose Lysine Deoxycholate Agar (DM297I) after enrichment in Tetrathionate medium, after an incubation at 35-37°C for 18-72 hours.

Sr. No.	Organisms	Results to be achieved					
		Inoculum (CFU)	Growth	Observed Lot value (CFU)	Recovery	Colour of Colony	Incubation temperature
1.	<i>Salmonella typhimurium</i> ATCC 14028	50-100	good-luxuriant	25 -100	≥50 %	red with black centres	18 -72 hrs
2.	<i>Salmonella abony</i> NCTC 6017	50-100	good-luxuriant	25 -100	≥50 %	red with black centres	18 -72 hrs

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure

Refer appropriate references for standard test procedures.

Results

Refer appropriate references and procedures for interpretation of results.

Storage

Store the sealed bottle containing the dehydrated medium at 10- 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.





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Limitations of the Procedure

1. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

Packaging

Product Name : Tetrathionate Broth Base

Product Code : DM353I

Available Pack sizes : 100gm / 500gm

References

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2. The Indian Pharmacopoeia (1996), Vol. II.
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4. Eaton A. D., Clesceri L. S. and Greenberg A W.,(Eds.), 2005, Standard Methods for the Examination of Water and Wastewater, 21st ed., APHA, Washington, D.C.
5. Pollock M.R. and Knor R., 1943, Biochem J., 37:476.
6. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria., Vol. 1, Williams and Wilkins, Baltimore.
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Further Information

For further information please contact your local MICROMASTER Representative.



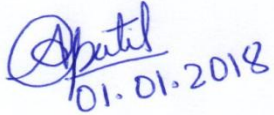
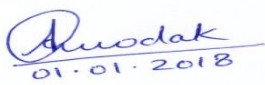

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