

Modified Semisolid Rappaport Vassiliadis Medium (MSRV) ISO

Cat. No. MM-M-N376

For the detection of motile *Salmonella* species from food and environment samples.

Principles and uses:

Modified Semisolid Rappaport Vassiliadis Medium (MSRV) is a selective medium used for the rapid detection of motile *Salmonella* spp. It is a modification of Rappaport Vassiliadis enrichment broth for detecting motile *Salmonella* spp. in feces, food products and environmental samples. In this medium the main detection is based on the motility and ability of *Salmonella* to migrate through selective medium ahead of competing motile microorganism, therefore producing opaque halos of growth.

The mobility of other microorganisms is inhibited by selective mediums (such as magnesium chloride, malachite green oxalate and novobiocin) as well as by the temperature of incubation at 42°C.

Tryptose and acid casein peptone provide nitrogen, vitamins, minerals and amino acids essential for growth. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Magnesium chloride and malachite green oxalate are inhibitory to organisms other than *Salmonella* spp. Novobiocin is a selective agent that inhibits gram positive bacteria and avoids the development of *Proteus*.

This medium is not suitable for the detection of non motile strains of *Salmonella* whose presence is very low (= 1 %). It is recommended to conduct serological and biochemical tests for *Salmonella* species confirmation.

Formula per Litre:

Acid casein peptone (H)	4.59g	Bacteriological agar	2.7g
Magnesium chloride anhydrous	10.93g	Novobiocin	0.01g
Potassium dihydrogenphosphate	1.47g	Sodium chloride	7.34g
Tryptose	4.59g	Malachite green oxalate	0.037g

Preparation:

Suspend 31.6 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. AVOID OVERHEATING. DO NOT AUTOCLAVE. Dispense into Petri plates.

Instructions for use:

For detection of *Salmonella* spp. in food, animal feed, animal feces, and environmental samples ISO 6579:

Preenrichment in non-selective liquid medium:

- Inoculate the Buffered Peptone Water (Cat. MM-M-402) with the sample or dilutions, and incubate at 34-38 °C for 18 h.

Enrichment in/on selective media:

- Inoculate, with the culture obtained in the pre-enrichment stage, the Modified Semisolid Rappaport Vassiliadis medium (MSRV) or the Rappaport Soy Broth (Vassiliadis) (Cat. MM-M-174), and the Caldo MKTTN (Cat. MM-M-173).
- The Modified Semisolid Rappaport medium and the Rappaport Soy Broth are incubated at 41.5°C for 24 h, and the Caldo MKTTN at 37°C for 24 h.

Plating out on selective solid media:

- From the selective enriched cultures, inoculate two selective isolation agar; XLD agar (Cat. MM-M-274) and any other selective medium complementary to XLD agar (*Salmonella* Chromogenic Agar (Cat. MM-M-122), Brilliant Green Agar (Cat. MM-M-143), Bismuth Sulfite Agar (Cat. MM-M-011), DCLS Agar (Cat. MM-M-045), Desoxycholate Citrate Agar (Cat. MM-M-067), Hektoen Enteric Agar (Cat. MM-M-030), *Salmonella* Shigella Agar (Cat. MM-M-064) and XLT4 Agar (Cat. MM-M-159)).

Technical Data Sheet

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- Incubate the XLD plates inverted at 37°C for 24±3 h.
- Incubate the second selective medium in accordance with the manufacturer's instructions.

Confirmation:

- Subculture colonies of presumptive Salmonella and confirm their identity by biochemical and serological tests.

Quality control:

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Beige	Blue	5.2±0.2

Microbiological test:

According to ISO 11133:

Incubation conditions: (41.5±1°C / 24±3 h).

Inoculation conditions: Productivity qualitative (10³-10⁴ CFU) / Selectivity (10⁴-10⁶ CFU) / Specificity (10³-10⁴ CFU).

Microorganisms	Specification	Characteristic reaction
Salmonella enteritidis ATCC 13076	Grey-white turbid zone extending out from inoculated. After 24-48 h the turbid zone will be fully migrated over the plate	Characteristic colonies after subculture in XLD
Salmonella typhimurium ATCC 14028	Grey-white turbid zone extending out from inoculated. After 24-48 h the turbid zone will be fully migrated over the plate.	Characteristic colonies after subculture in XLD
Escherichia coli ATCC 25922	Possible growth without a turbid zone	
Enterococcus faecalis ATCC 29212	No growth	

Storage:

Temperature: 2°C - 25°C

Bibliography:

De SMEDT et al.; Rapid Salmonella Detection in Foods by Motility Enrichment on a Modified Semi-Solid Rappaport-Vassiliadis Medium. J. Food Protect. Vol. 49, 7; 510-514 (1986).

De SMEDT, a. BOLDERDIJK, R.F.; Dynamics of Salmonella Isolation with Modified Semi-Solid Rappaport-Vassiliadis Medium. J. Food Protect. Vol. 50, 8; 658-661 (1987).