

## Modified Semi-Solid Rappaport-Vassiliadis (MSRV) Agar (ISO) (NCM0067)

### Intended Use

Modified Semi-Solid Rappaport-Vassiliadis (MSRV) Agar (ISO) is used with Novobiocin for the horizontal method for the rapid detection of motile *Salmonella* spp, as described in ISO 6579-1:2017. Modified Semi-Solid Rappaport-Vassiliadis (MSRV) Agar (ISO) is not intended for use in the diagnosis of disease or other conditions in humans.

### Description

MSRV was developed in 1986 by De Smedt, Bolderdijk and Rappold as a rapid means of *Salmonella* detection. The medium, based upon Rappaport Vassiliadis broth, is inoculated directly from the pre-enrichment medium, in the center of the plate. Motile organisms spread from the center in the semi-solid agar, but non-salmonellas are inhibited by the selective agents. After overnight incubation the use of polyvalent salmonella antisera or a latex kit can confirm the presence of a *Salmonella*. Alternatively, a paper disc wetted with polyvalent H antiserum can be placed 1/3 of the way from the edge of the dish, and will signal the presence of a *Salmonella* by inhibiting the mobility of the organism around the disc. Using this medium De Smedt and Bolderdijk have reported the possibility of detecting *Salmonella* in 24hrs (1987). This medium conforms to the performance and formulation requirements of ISO 6579-1:2017.

### Typical Formulation

Enzymatic Digest of Animal and Plant Tissue	4.6 g/L
Acid Hydrolysed Casein	4.6 g/L
Sodium Chloride	7.3 g/L
Potassium Dihydrogen Phosphate	1.5 g/L
Magnesium Chloride	10.9 g/L
Malachite Green	0.04 g/L
Agar	2.7 g/L

pH: 5.1 – 5.4 at 25°C

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

### Supplements

NCM4040      Novobiocin

### Precaution

Refer to SDS

### Preparation

1. Suspend 31.6 grams of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. DO NOT AUTOCLAVE.
4. Cool to 45-50°C and add 1 vial of NCM4040-0.5\*, Novobiocin, reconstituted using 5mL sterile deionized/RO water.
5. Mix well and dispense into petri dishes.

\*Larger vials may be available. Please see appropriate supplement data sheet for availability and preparation instructions.

# Technical Specification Sheet



## Test Procedure

For detection and enumeration and Serotyping of Salmonella- Refer to ISO 6579-1:2017

## Quality Control Specifications

**Dehydrated Appearance:** Powder is homogeneous, free flowing, and beige to pale blue beige.

**Prepared Appearance:** Prepared medium is trace to slightly hazy, dark blue and no precipitate.

**Expected Cultural Response:** Cultural response incubated aerobically at  $41.5 \pm 1^\circ\text{C}$  and examined for growth after 21 – 51 hours.

Microorganism	Approx. Inoculum (per drop)	Expected Results	
		Growth	Motility
<i>Enterococcus faecalis</i> ATCC® 29212	$>10^4$	Complete Inhibition	N/A
<i>Enterococcus faecalis</i> ATCC® 19433	$>10^4$	Complete Inhibition	N/A
<i>Escherichia coli</i> ATCC® 8739	$>10^4$	Suppressed	Migration inhibited
<i>Escherichia coli</i> ATCC® 25922	$>10^4$	Suppressed	Migration inhibited
<i>Salmonella enteritidis</i> ATCC® 13076	$10^3$ to $10^4$	Good growth	Good Migration
<i>Salmonella typhimurium</i> ATCC® 14028	$10^3$ to $10^4$	Good growth	Good Migration

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

## Results

**Positive:** Growth of migrated cells is visible as a grey-white, turbid zone extending out from the inoculated drop. Test sample is considered presumptively positive for motile *Salmonella* spp.

**Negative:** Medium remains blue-green around inoculation drops, with no grey-white, turbid zone extending out from the drop. Test sample is considered negative for motile *Salmonella* spp.

## Expiration

Refer to 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.

## Limitation of the Procedure

The combined inhibitory factors of this medium may inhibit certain *Salmonella*, such as *S. typhi* and *S. choleraesuis*. Isolation techniques should include a variety of enrichment broths and isolation media.

## Storage

Store dehydrated culture media at  $2 - 30^\circ\text{C}$  away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

## References

1. ISO 6579-1:2017 Microbiology of the food chain – Horizontal method for the detection, enumeration and serotyping of Salmonella.
2. De Smedt, J.M. and Bolderdijk, R.F. (1987): 'One Day Detection of Salmonella from Foods and Environmental Samples by Mobility Enrichment'. Fifth International Symposium on Rapid Methods and Automation in Microbiology and Immunology, Florence (1987). Brixia Academic Press.
3. De Smedt, J.M. and Bolderdijk, R.F., Rappold H. and Lautenschlaeger, D. Rapid Salmonella Detection in Foods in Mobility Enrichment on a Modified Semi-Solid Rappaport- Vassiliadis Medium. Journal of Food Protection 49 510-514. (1986).



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4. De Smedt, J.M. and Bolderdijk, R.F. Dynamics of Salmonella Isolation with Modified Semi-Solid Rappaport-Vassiliadis Medium. *Journal of Food Protection* 50 658-661. (1987).
5. De Smedt, J.M. and Bolderdijk, R.F. Collaborative Study of the International Office of Cocoa. Chocolate and Sugar Confectionery on the Use of Mobility Enrichment for Salmonella Detection in Cocoa and Chocolate. *Journal of Food Protection* 53 659-664. (1990).
6. Goossens, H., Wauters, G., De Boeck, M., Janssens, M., and Butzler, J.P. Semi-solid selective mobility enrichment medium for isolation of Salmonella from faecal specimens *J. Clin. Microbiol* 19 940-941. (1984).

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