



PRODUCT SPECIFICATION SHEET

Modified Semisolid RV Medium Base (DM1738)

Intended Use

Modified Semisolid RV Medium Base (DM1738) is recommended for a semisolid medium for detection of motile *Salmonella* species from food and environmental specimen.

Product Summary and Explanation

Salmonellosis continues to be an important public health problem worldwide, despite efforts to control the prevalence of *Salmonella* in domesticated animals. Infection with non-typhi *Salmonella* often causes mild, self-limiting illness. The illness results from consumption of raw, undercooked or improperly processed foods contaminated with *Salmonella*. *Salmonella* species have been isolated from humans and almost all animals throughout the world. *Salmonella* species cause many types of infections from mild, self-limiting gastroenteritis to life-threatening typhoid fever.⁽¹⁾ Successful isolation of *Salmonella* is often both time-consuming and complex. A number of isolation procedures have been based on motility, as over 90% of all *Salmonella* species are motile. Modified Semisolid RV Medium Base is recommended for isolating motile *Salmonella* species from clinical, food and environmental samples.⁽²⁻⁵⁾ The working of these media is based on the ability of *Salmonella* species to migrate in the selective medium competing other motile organisms, thus producing opaque halos of growth. The motile bacteria will show a halo or zone of growth originating from inoculation spot. These media can be used in combination with direct culture. Selenite F Broth (M052) can be used for enrichment, while for isolation of *Salmonella* species; XLD Agar (M031) can be used. Subculturing on XLD Agar (M031) or Mannitol Lysine Agar (M1071) results in higher recovery rates.⁽⁶⁾ These medium is not suitable for the detection of non-motile strains of *Salmonella*.⁽⁷⁾

Principles of the Procedure

Modified Semisolid RV Medium Base contains peptone special which provides the nitrogenous and carbonaceous substances and other essential nutrients required for growth. Yeast extract serves as a source of B complex vitamins. Potassium dihydrogen phosphate acts as a buffering agent. Malachite green serves as a selective agent. Sodium chloride maintains the osmotic equilibrium of the media. *Salmonella* generally survives a little high osmotic pressure (due to MgCl₂ in the medium), grows at slightly low pH and are resistant to malachite green compared to other bacteria. All these factors make the medium selective for the isolation of *Salmonella*. These medium enrich *Salmonella* and the semisolid nature of the medium helps to differentiate the motile *Salmonella* from non-motile ones. Addition of novobiocin as a supplement (MS189) in the medium selectively inhibits most gram-positive organisms.

Formula / Liter

| Ingredients | Gms / Liter |
|--|-------------|
| Peptone, special | 8.25 |
| Yeast extract | 0.92 |
| Sodium chloride | 7.33 |
| Potassium dihydrogen phosphate | 1.47 |
| Magnesium chloride, anhydrous | 12.37 |
| Malachite green oxalate | 0.037 |
| Agar | 2.57 |
| Final pH: 5.5 ± 0.2 at 25°C | |
| 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.





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- The motility of *Salmonellas* can be drastically reduced when the agar surface becomes too dry. Hence the plates should be well dried before use. If visible moisture occurs on the lid of the plates or the surface of agar, it must be removed.
- While incubation, incubate the plates aerobically in an upright position for no longer than 24 hours at respective temperatures.

Directions

- Suspend 32.95 grams of the medium in one liter of distilled water.
- Heat to boiling, to dissolve the medium completely.
- Autoclave at 115°C for 15 minutes / validated cycle.
- Cool to 45-50°C and aseptically add rehydrated contents of 1 vial of IMRV/ RV Selective Supplement (MS189).
- Mix well and dispense as desired (butts or Petri plates)

Quality Control Specifications

| | |
|----------------------------|---|
| Dehydrated Appearance | Light yellow to light blue homogeneous free flowing powder |
| Prepared Medium | Blue coloured clear to slightly opalescent gel forms in Petri plates or in tubes as butts |
| Reaction of 3.29% Solution | pH : 5.5 ± 0.2 at 25°C |
| Gel Strength | Semisolid, comparable with 0.26% Agar gel |

Expected Cultural Response : Cultural characteristics observed after an incubation at different temperatures for 18-24 hours with added IMRV/RV Selective Supplement (MS189).

| Sr. No. | Organisms | Results to be achieved | | | |
|---------|--|------------------------|-------------------|------------------|--|
| | | Inoculum (CFU) | Growth at 35-37°C | Growth at 42±1°C | Motility |
| 1. | <i>Salmonella Paratyphi B ATCC 8759</i> | 50-100 | good | good | positive, opaque halos of growth originating from inoculation spot in Petri plates or opaque growth dispersing away from stabline in butts |
| 2. | <i>Salmonella Typhi ATCC 6539</i> | 50-100 | fair-good | good | positive, opaque halos of growth originating from inoculation spot in Petri plates or opaque growth dispersing away from stabline in butts |
| 3. | <i>Salmonella Typhimurium ATCC 14028</i> | 50-100 | good-luxuriant | luxuriant | positive, opaque halos of growth originating from inoculation spot in Petri plates or opaque growth dispersing away from stabline in butts |

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

Test Procedure

- Inoculate 3 drops (0.1 ml) of pre-enrichment culture (16-20 hours old) in separate spots on the air-dried medium surface.
- Incubate the plates in an upright position at 42°C for upto 24 hours. The motile bacteria will show a halo or zone of growth originating from inoculation spot.
- Salmonella* species show straw-coloured colonies. Sub-cultures can be carried out from the outside edge of the halo to confirm purity and for further biochemical and serological tests.
- Refer appropriate references for specific test procedures.





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Results

Refer appropriate references and test 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.

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 : Modified Semisolid RV Medium Base

Product Code : DM1482

Available Pack sizes : 500gm

References

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Further Information

For further information please contact your local MICROMASTER Representative.



MICROMASTER LABORATORIES PRIVATE LIMITED

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Unit 38/39, Kalpataru Industrial Estate,
Off G.B. Road, Near 'R-Mall' , Thane (W) - 400607. M.S. INDIA.
Ph: +91-22-25895505, 4760, 4681. Cell: 9320126789.
Email: micromaster@micromasterlab.com
sales@micromasterlab.com





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| Prepared By | Checked By | Approved By |
|---|---|---|
|  01.01.2018 |  01.01.2018 |  01.01.2018 |
| Microbiologist | Head Quality Control | Head Quality Assurance |

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