# PRODUCT SPECIFICATION SHEET

## Maximum Recovery Diluent (DM531)

**Intended Use**
Maximum Recovery Diluent (DM531) is recommended for a protective and isotonic diluent used for maximal recovery of microorganisms.

**Product Summary and Explanation**
Standard methods for the microbiological examination of foodstuffs require sample dilution to be carried out accurately to estimate the number of microorganisms. Diluents consisting of sterile saline, phosphate buffer solutions and distilled water have all been shown to have a lethal action on a wide range of organisms.[1,2]
Maximum Recovery Diluent is formulated as recommended by ISO Committee[3] for use as a isotonic diluent. Maximum Recovery Diluent combines protective effect of peptic digest of animal tissue[4] with the osmotic balance of physiological saline.[5] The low concentration of peptic digest of animal tissue helps to maintain the organisms for 1-2 hours of dilution without multiplication.[4,5] The isotonic property of the diluent ensures the recovery of organisms from various sources, which may be vulnerable in distilled water or aqueous suspensions. The presence of peptone also allows accurate quantitative procedures to be performed with minimal reductions in viable count in the diluents.

**Principles of the Procedure**
Maximum Recovery Diluent contains low levels of peptone help protect organisms in the diluent. Sodium chloride maintains proper osmotic pressure.

**Formula / Liter**

| Ingredients | Gms / Liter |
|---|---|
| Peptic digest of animal tissue | 1.00 |
| Sodium chloride | 8.50 |
| Final pH: 7.0 ± 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.

**Directions**
1. Suspend 9.5 grams in one liter of distilled water.
2. Heat, if necessary, to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Mix well and dispense as desired.

**Quality Control Specifications**

| | |
|---|---|
| **Dehydrated Appearance** | White to pale yellow homogeneous free flowing powder |
| **Prepared Medium** | Light yellow coloured clear solution without any precipitate |
| **Reaction of 0.95% solution** | pH 7.0 ± 0.2 at 25°C |
| **Gel Strength** | Not Applicable |

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**Expected Cultural Response:** Cultural characteristics observed on Soyabean Casein Digest Agar (DM247), after an incubation at 35-37°C for 18-24 hours of cultures suspended in Maximum Recovery Diluent for 30 minutes.

| Sr. No. | Organisms | Results to be achieved | |
|---|---|---|---|
| | | Inoculum (CFU) | Recovery (after 30 minutes) |
| 1. | *Escherichia coli ATCC 25922* | 50-100 | no change in numbers |
| 2. | *Staphylococcus aureus ATCC 25923* | 50-100 | no change in numbers |

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

**Test Procedure**

1. Add 10 gm of test sample 90 ml of sterile Maximum Recovery Diluent into a sterile blender jar.
2. Operate the blender at 15,000 to 20,000 revolutions per minute.
3. Transfer 1 ml of it to 9 ml of sterile diluent within 15 minutes and mix well. It will be $10^{-1}$ dilution.
4. Appropriate serial dilutions can be prepared using same diluent and counts obtained by spread plate or pour plate technique.
5. Use a positive test sample divided between new and previous diluent. Carry out duplicate tests as described in technique and look for equivalent yields of organisms between the diluent batches.
6. Incubate the tubes with test organisms.
7. At time zero and after 30 minutes at room temperature, subculture a loopful (0.01 ml) onto Soyabean Casein Digest Agar (DM247) with 5% v/v sheep blood using streak technique.
8. Incubate plates at 35 ± 2°C for 18-24 hours.

**Results**

Refer to appropriate references and standard test procedures for interpretation of results.

**Storage**

Store the sealed bottle containing the dehydrated medium at 2 - 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 : Maximum Recovery Diluent**
**Product Code : DM531**
**Available Pack sizes : 500gm**
**References**

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1. DeMello, Danielson and Kiser. 1951. J. Lab. Clin. Med. *37*:579.
2. Gunter. 1954. J. Bacteriol. *67*:628.
3. International Organization for the Standardization (ISO), ISO/DIS 6649.
4. Straker R. P. and Stokes J. L., 1957, Appl. Microbiol., 5:21.
5. Patterson and Cassells. 1963. J. Appl. Bacteriol. *26*:493.


**Further Information**

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