

Maximum Recovery Diluent, Granulated

GM1030

Intended use

Maximum Recovery Diluent is a protective and isotonic medium used for maximal recovery of microorganisms from a variety of sources.

Composition**

Ingredients	Gms / Litre
Peptone	1.000
Sodium chloride	8.500
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 9.5 grams in 1000 ml purified/distilled water. Heat if necessary to dissolve the medium completely. Dispense into tubes or flasks as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Maximum Recovery Diluent is formulated as recommended by ISO Committee (1,2,3) for use as an isotonic diluent. Standard methods for the examination of foodstuffs require sample dilution to be carried out accurately to estimate the number of microorganisms.

Maximum Recovery Diluent combines protective effect of Peptone (4) with the osmotic balance of physiological saline (5). The low concentration of Peptone helps to maintain the organisms for 1-2 hours of dilution without multiplication. The isotonic property of the diluent ensures the recovery of organisms from various sources, which may be vulnerable in distilled water or aqueous suspensions.

Type of specimen

Food samples.

Specimen Collection and Handling:

Put 10 gm of test sample into a sterile blender jar and add 90 ml of sterile Maximum Recovery Diluent. Operate the blender at 15,000 to 20,000 revolutions per minute. Transfer 1 ml of it to 9 ml of sterile diluent within 15 minutes and mix well. It will be 10⁻¹ dilution. Appropriate serial dilutions can be prepared using same diluent and counts obtained by spread plate or pour plate technique. 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. Incubate the tubes with test organisms. At zero time and after 30 minutes, subculture a loopful (0.01 ml) onto Casein Soyabean Digest Agar, Granulated (GM290) at room temperature with 5% v/v sheep blood using streak technique. Incubate plates at 35 ± 2°C for 18-24 hours.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

White to pale yellow coloured granular medium

Colour and Clarity of prepared medium

Light yellow coloured clear solution without any precipitate

Reaction

Reaction of 0.95% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH

6.80-7.20

Cultural Response

Cultural characteristics observed on Soyabean Casein Digest Agar (M290), after an incubation at 35-37°C for 18-24 hours of cultures suspended in Maximum Recovery Diluent for 30 minutes.

Organism	Inoculum (CFU)	Recovery (after 30 minutes)
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	no change in numbers
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	50-100	no change in numbers

Key : (*) Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 15-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

Reference

1. International Organization for the Standardization (ISO), ISO/DIS 6649.
2. ISO 6887-1:2017-Microbiology of the food chain — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 1: General rules for the preparation of the initial suspension and decimal dilutions.
3. ISO 8199:2018-Water quality — General requirements and guidance for microbiological examinations by culture.
4. Straker R. P. and Stokes J. L., 1957, Appl. Microbiol., 5:21.
5. Patterson J. W. and Cassells J. A., 1963, J. Appl. Bacteriol., 26:493.
6. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
7. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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Disclaimer :

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