

Instructions for Use

Ringers Solution (1/40 Strength)

Bottled Media

REF - BM0315

1. Intended Use

BM0315 Ringers Solution (1/40 Strength) may be used as an isotonic diluent or rinse solution that maintains the osmotic balance for bacteria.

2. Composition*

<u>Ingredient</u>	<u>g/L</u>
Sodium chloride	0.225
Potassium chloride	0.010
Calcium chloride	0.012
Sodium hydrogen carbonate	0.005

*Adjusted/supplemented as needed to meet performance requirements

3. Summary and Explanation

BM0315 Ringers Solution (1/40 Strength) is used for the suspension of samples and as a diluent in dilution techniques for enumeration. It can also be used in the microbial control of apparatus by the rinse and swab method.

Ringers Solution (1/40 Strength) may be used for dilution series of milk, dairy products, and other samples prior to inoculation to liquid or solid media ^(1 2).

Ringers Solution (1/40 Strength) is tested as a diluent in accordance with ISO 11133:2014 ⁽³⁾ and is not intended for use in the diagnosis of disease or other conditions in humans.

4. Principle

The salts in the solution provide an isotonic medium to maintain the osmotic balance of bacteria.

5. Physical Characteristics

	<u>Appearance and Colour</u>	<u>pH</u>
Medium	Colourless liquid	N/A

6. Materials Provided

BM0315 Ringers Solution (1/40 Strength) is available in the formats detailed below. Each bottle is ink-jet printed or labelled with (abbreviated) product name, product code, lot number and expiry date.

<u>Product Code</u>	<u>Product Format</u>
BM0315-M002-10	50 x 10ml in Thin Wall Universals
BM0315-M002-20	50 x 20ml in Thin Wall Universals
BM0315-R125-100	10 x 100ml in 125ml Sirup Bottles

7. Materials Needed but not Provided

Standard microbiological laboratory materials e.g., sterile loops or swabs, collection containers, incubators, media for isolation and quality control organisms.

8. Specimens

BM0315 Ringers Solution (1/40 Strength) is used as a general-purpose diluent in many areas of the laboratory, maintaining cell morphology and integrity, but is not used as a culture medium.

9. Test Procedures and Interpretation of results

To create serial dilutions, prepare a suspension using a ratio of 1:10 of sample to Ringers Solution (1/40 Strength) and homogenise. This can be repeated multiple times to create further dilutions. For further details, see ISO 6887-5:2020 ⁽²⁾ CLSI M40-A2 ⁽⁴⁾.

Aseptically transfer 1ml of each dilution of the initial suspension in duplicate to the centre of a sterile Petri dish and prepare pour plates with the medium of choice. Alternatively, spread 0.5ml of the dilutions onto a suitable pre-poured agar plate.

Incubate at a suitable temperature for the agar and target organisms.

After incubation, examine agar for colonies. Perform further biochemical, serological, molecular, or mass spectroscopy testing to confirm identity of presumptive positive isolates. Refer to relevant local guidelines.

10. Quality Control

Organism	Incubation	Result (Specificity)
<i>E. coli</i> (NCTC 12241) <i>S. aureus</i> (NCTC 12981)	Inoculate the Productivity bottles with the stated dilution and immediately subculture 100µl of each bottle onto a separate PP0280 Tryptone Soya Agar plate (Before plates). Incubate the inoculated bottles at 20-25°C aerobically for 45-60 minutes. After incubation, subculture 100µl of each bottle onto a separate PP0280 Tryptone Soya Agar plate (After plates). Incubate plates at 37 ± 1°C for 18-24 hours.	Stable Viability. Subplate: Cream colonies Stable Viability. Subplate: White colonies

It is the responsibility of the user to perform Quality Control testing taking into consideration the intended use of the medium and in agreement with any local relevant guidelines (e.g., frequency, strains used, atmosphere, incubation temperature).

11. Performance

To fully verify BM0315 Ringers Solution (1/40 Strength) performance, samples were tested to assess maintenance of stable viability, where an acceptable recovery range after a holding period of 45-60 minutes is ≤30% cfu difference, when subcultured on E&O PP0280 Tryptone Soya Agar. Samples were incubated at 20-25°C aerobically for 45-60 minutes during the test. All samples showed stable viability of the required test organisms: *Escherichia coli* (NCTC 12241) and *Staphylococcus aureus* (NCTC 12981). Therefore, it can be concluded that BM0315 Ringers Solution (1/40 Strength), meets performance criteria when used according to the instructions outlined above.

12. Limitations of the Medium

- Due to natural variation, some strains may grow poorly on this medium.

13. Precautions and Warnings

This product is considered non-hazardous under CLP regulations. Wear such PPE as recommended by laboratory COSHH assessment. During and after use, always handle all materials in a manner conforming to Good Laboratory Practices and consider that material under test should be regarded as a potential biohazard if mishandled.

Refer to E&O BM0315 Bottled Media Material Safety Data Sheet.

14. Storage conditions and Shelf life

Store BM0315 in the original bottle with the lid tightly closed at between 15 and 30°C. Kept under these conditions it may be used up to date of expiry shown on product label.

Dispose of in accordance with local and national authority requirements. Do not use medium if it is contaminated, discoloured or out of date. Additionally, do not use medium if it has been stored inappropriately or the packaging has been damaged.

15. References

1. Davis, J. G. (1956). Laboratory control of Dairy Plant. Dairy industries, Ltd.
2. International Organization for Standardization (2020) 6887-5:2020 Microbiology of the food chain – Preparation of test samples, initial suspension and decimal dilutions for microbiological examination – Part 5 Specific rules for the preparation of mol and milk products. Geneva, ISO.
3. International Organization for Standardization (2014) 11133:2014 Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media. Geneva, ISO.
4. Clinical and Laboratory Standards Institute (2014) CLSI M40-A2 Quality Control of Microbiological Transport Systems, 2nd Ed. Wayne, PA.

Version History*

001 23/10/23 - New Document Created

*Note: minor typographical, grammatical, and formatting changes are not included in the revision history.

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TABLE OF APPLICABLE SYMBOLS

IFU/BM0315 REV. 001

 REF Catalogue number	 LOT Batch code		 Manufacturer	 Use by
 Temperature limitation	 Contents sufficient for <n> tests	 Consult Instructions for Use	 Keep away from direct light	 Store in a dry place