

## Specification

Isotonic solution for the cellular suspensions according to ISO normative.

## Presentation

	Packaging Details	Shelf Life	Storage
20 Tubes Tube 16 x 113 mm with: 9 ± 0.2 ml	1 box with 20 tubes, 16x113 mm glass tubes, ink labelled and metal-Non injectable cap..	12 months	8-25 °C

## Composition

Composition (g/l):	
Sodium chloride.....	2.25
Potassium chloride.....	0.10
Calcium chloride.....	0.06
Sodium bicarbonate.....	0.05

## Description /Technique

### Description:

Isotonic saline solution for cellular suspensions and inocula adjustments, widely used in Microbiology, more balanced than the simple sodium chloride saline solution, and its formulation allows autoclaving without any precipitation.

For the routine work with bacteria the solution should be diluted one fourth ( Ringer 1/4) and is employed to get cell suspensions or to prepare dilution banks.

Ringer solution does not act as a revitalizer. To dilute food samples or substances that have undergone thermal treatment, it is more advisable to use Peptone Water or Maximum Recovery Diluent (MRD) for the dilutions, They acts as a revitalizer.

Due to the low ionic strength of this medium, the final pH value can vary.

### Technique:

The sample is diluted in a ratio 1:10 with the Ringer and homogenized by a vortex mixer or Stomacher®. After a short period (10-15 minutes) of rest, a 1/10 dilution bank with the same diluent is prepared following standard procedures. Plates are inoculated using the range of different concentrations.

## Quality control

### Physical/Chemical control

Color : Colourless

### Microbiological control

Prepare tubes / Inoculate ≤10<sup>3</sup> CFU/ tube (productivity)/ Subculture on agar plates, after holding at 20-25°C for 45 min. to 1 h.

Microbiological control according to ISO 11133:2014/A1:2018.

Analytical methodology according to ISO 11133:2014/A1:2018; A2:2020.

Aerobiosis. Incubation at 35 ± 2 °C, reading at 24-48 hours.

### Microorganism

*Escherichia coli* ATCC® 8739, WDCM 00012

*Stph. aureus* ATCC® 25923, WDCM 00034

### Growth

Good. Recovery ±30% T0 (original enumeration)

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### Sterility control

Incubation 48 h at 30-35 °C and 48 h at 20-25 °C: NO GROWTH.

Check at 7 days after incubation in same conditions.

## Bibliography

- ISO 6887-1: 2017 Microbiology of 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 - Part 2 (2003): Specific rules for the preparation of meat and meat products.
- ISO Standard 8199 (2018) Water Quality - General requirements and guidance for microbiological examinations by culture.
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- ISO Standard 10718:2015 Cork stoppers — Characterization of a low-in-germs stopper, through the enumeration of colony-forming units of yeasts, moulds and bacteria, capable of both being extracted and growing in alcoholic medium
- ISO Standard 11133:2014 Microbiology of food, animal feed and water. Preparation, production, storage, and performance testing of culture media.
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