



Reference : 02-135

Scharlau Microbiology - Technical data sheet

Product :  
MRS BROTH**Specification**

Liquid culture medium for the isolation of lactobacilli, according to de Man, Rogosa and Sharpe.

**Formula \* in g/L**

Peptone proteose.....	10.00	Magnesium sulfate.7 H <sub>2</sub> O.....	0.20
Meat extract.....	8.00	Manganese sulfate.4 H <sub>2</sub> O.....	0.05
Yeast extract.....	4.00	Dipotassium phosphate.....	2.00
D(+)-Glucose.....	20.00	Polysorbate 80.....	1.00
Sodium acetate.3 H <sub>2</sub> O.....	5.00		
Triammonium citrate.....	2.00	Final pH 6.2 ±0.2 at 25 °C	

\* Adjusted and /or supplemented as required to meet performance criteria

**Directions**

Suspend 52 g of powder in 1 L of distilled water. Heat to dissolve completely and dispense into suitable containers. Sterilize in the autoclave at 121°C for 15 minutes. Do not overheat.

If some modifications of pH are desired, is recommended the use of acetic acid or sodium hydroxide.

**Description**

MRS Agar and Broth are media for the cultivation of lactobacilli, they are a modification of a medium based on the highly nutritious properties of tomato juice. The addition of magnesium, manganese and acetate, together with polysorbate, has provided an improved medium for the growth of lactobacilli, including that of very fastidious species such as *Lactobacillus brevis* and *Lactobacillus fermentum*.

The quality of the peptones in addition to the meat and yeast extracts, combine all the necessary growth factors that make MRS medium one of the best media for the cultivation of lactobacilli.

As the selectivity of the medium is low and contaminants tend to grow subculturing in a (double layer) solid medium and then in broth is recommended to improve selectivity. In many cases, growth is encouraged by incubation in a CO<sub>2</sub> enriched atmosphere.

MRS media is particularly recommended for the enumeration and maintenance of lactobacilli either by the MPN technique (in broth) or on a plate by inoculation on a plate, overlaying it with a second layer of molten medium. This technique overcomes the need for a CO<sub>2</sub> enriched atmosphere.

NOTE: After a long static storage this product tends to cake and compacted without affecting their quality. Its powder fluidity can be recovered with a strong and vigorous shaking the capped container

**Quality control****Incubation temperature:** 30 ±1 °C**Incubation time:** 72 ± 3 h**Inoculum:** Practical range 100±20 CFU. min. 50 CFU (productivity)/ 10<sup>4</sup> CFU (selectivity), according to ISO 11133:2014/Amd 1:2018.**Microorganism****Growth****Remarks**

<i>Lactobacillus sakei</i> ATCC® 15521	Good - very good	Incubate in a 5% CO <sub>2</sub> atmosphere
<i>Lactococcus lactis</i> ATCC® 19435	Good - very good	Incubate in a 5% CO <sub>2</sub> atmosphere
<i>Pediococcus pentosaceus</i> ATCC® 33316	Good - very good	Incubate in a 5% CO <sub>2</sub> atmosphere
<i>Escherichia coli</i> ATCC® 8739	Fair to good	Incubate in a 5% CO <sub>2</sub> atmosphere



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### References

- ATLAS, R.M. & L.C. PARKS (1993) Handbook of Microbiological Culture Media. CRC Press. BocaRaton, Fla. USA
- DOWNES, F.P. & K. ITO (2001) Compendium of Methods for the Microbiological Examination of Foods. 4th Edition. APHA. Washington DC. USA
- FIL-IDF Standard 146 (2003) Yoghurt. Identification of characteristic micro-organisms.
- IFU Method No 7 (1998) Sterility testing of aseptic filled products, commercial sterile products and preserved products. Schweizerischer Obstverband. CH-6302 Zug
- ISO Standard 9232 (2003) Yoghurt – Identification of characteristic micro-organisms (Lactobacillus delbrueckii subsp bulgaricus and Streptococcus thermophilus)
- ISO Standard 11133 (2014) Microbiology of food, animal feed and water. Preparation, production, storage, and performance testing of culture media.
- McFADDIN, J. (1985) Media for the isolation-cultivation-identification-maintenance of medical bacteria. Vol. I. William & Wilkins. Baltimore. USA
- MAN, J.C. de, ROGOSA, M. y SHARPE, M. Elisabeth (1960) A medium for the cultivation of lactobacilli. J. Appl. Bact.; 23:130.

### Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).