
CONTACT BAIRD-PARKER EGG YOLK TELLURITE + NEUTRALIZERS

DETECTION AND ENUMERATION OF COAGULASE-POSITIVE STAPHYLOCCOCUS

1 INTENDED USE

Baird-Parker agar with potassium tellurite egg yolk is a selective media used for the detection and enumeration of *Staphylococcus aureus* in biological samples of animal origin, pharmaceutical products, cosmetic products, food products and water. This media is supplemented with neutralizers allowing its use to control critical points in industry (e.g.: protected areas, microbiological monitoring programs of surfaces and industrial environments).

2 PRINCIPLE

The media forms a convex meniscus that allows the direct application of the agar on the control areas, whether on walls, floors, utensils or personnel. It contains several neutralizers that inhibit disinfectant residues that may be present on the surfaces to be monitored, in order to assess the levels of contamination before and after disinfection of the food chain environment.

The neutralizers are selected to inactivate residues of disinfectants that may be present on surfaces, such as aldehydes and phenols, quaternary ammoniums, oxidizing compounds.

The growth of staphylococci is promoted by sodium pyruvate and glycine.

The secondary microflora is inhibited in the presence of lithium chloride, potassium tellurite (added extemporaneously), as well as by the high concentration of glycine.

Enrichment with egg yolk aids identification by demonstrating the action of lecithinase.

Staphylococcus aureus shows black colonies (reduction of tellurite to tellurium), surrounded in most cases by a clear halo of egg yolk.

In principle, the other microorganisms are inhibited. However, it is possible to observe brown or greenish colonies of *Micrococcus*, white colonies of yeasts, brown colonies of *Bacillus* or *Proteus*.

The medium forms a convex meniscus that allows the direct application of the agar on the control areas, whether on walls, floors, utensils, or staff.

3 TYPICAL COMPOSITION

The composition can be adjusted in order to obtain optimal performance.

For 1 liter of complete medium:

- Tryptone	10.0 g
- Meat extract	5.0 g
- Autolytic yeast extract	1.0 g
- Sodium pyruvate	10.0 g
- Glycine	12.0 g
- Lithium chloride	5.0 g
- Bacteriological agar.....	15.0 g
- Egg yolk emulsion	47.0 mL
- Potassium tellurite 3.5%.....	3.0 mL

pH of ready-to-use media at 25 °C: 7.2 ± 0.2 .

A mixture of neutralizing agents is added according to the specific characteristics of the medium.

4 INSTRUCTIONS FOR USE

- Use the culture media at room temperature and on a dry surface.
- Open the plate and apply the agar directly to the surface to be tested. Make sure to maintain a uniform pressure over time (e.g. 500 g for 10 s according to NF EN ISO 18593). Then close the plate. Keep the agar at 1 to 8°C in a suitable transport container and incubate within 48 hours.
- Clean the sample surface to remove any traces of nutrients, moisture and chemical or physical elements resulting from the application of the agar.
- Incubate at 34-38 °C for 24 ± 2 h then 48 ± 4 hours according to NF EN ISO 6888-1 or at 32.5 ± 2.5°C for 24-48h following NF EN ISO 22718 (cosmetics).

✓ **Incubation:**

**24 – 48 h at 34 - 38 °C
or at 32.5 °C**

NOTE:

It is recommended that a control of the efficiency of the mixture of neutralizers present in the media be carried out in relation to the disinfectant product used, given the diversity of antiseptics existing on the market.

5 RESULTS

Coagulase-positive *Staphylococcus* is characterized by the formation of black or grey colonies (reduction of tellurite to tellurium), shiny, convex, surrounded by a clear halo of yolk (2 to 5 mm in diameter, corresponding to proteolysis). Inside the halo, an opaque zone may appear due to the action of lecithinase.

Proceed with the counting of the colonies. The grid at the bottom of the plates facilitates counting.

Divide the number of characteristic colonies by the area of the sampled surface and deduce the number of colonies forming units (CFU) per square centimeter of surface.

To confirm coagulase-positive *Staphylococcus*, refer to NF EN ISO 6888-1.

6 QUALITY CONTROL

Typical culture response after 24 to 48 hours of incubation at 37 °C (NF EN ISO 11133):

Microorganismes		Croissance (Rapport de productivité : P_R)	Caractéristiques
<i>Staphylococcus aureus</i>	WDCM 00032	$P_R \geq 0,5$	Grey to black colonies, with halo; lecithinase (+)
<i>Staphylococcus aureus</i>	WDCM 00034	$P_R \geq 0,5$	Grey to black colonies, with halo; lecithinase (+)

7 STORAGE / SHELF LIFE

Ready-to-use media: 2-14 °C.

Expiry dates are indicated on the labels.

8 PACKAGING

Pre-poured media in plates (Ø 65 mm):

30 platesBM21109

9 BIBLIOGRAPHY

NF EN ISO 18593. July 2018. Microbiology of the food chain - Horizontal methods for sampling techniques from surfaces using contact plates and swabs.

NF EN ISO 11133. July 2014. Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media.

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NF EN ISO 11133/A2. May 2020. Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media.

NF EN ISO 6888-1. September 2021. Microbiology of the food chain - Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) - Part 1 : method using Baird-Parker agar medium

NF EN ISO 6888-1/A1. September 2023. Microbiology of the food chain - Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) - Part 1: Method using Baird-Parker agar medium

NF EN ISO 6888-3. June 2003. Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) - Part 3 : detection and MPN technique for low numbers.

NF EN ISO 22718. February 2016. Cosmetics - Microbiology - Detection of *Staphylococcus aureus*.

10 ADDITIONAL INFORMATION

The information provided on the labels take precedence over the formulations or instructions described in this document and are susceptible to modification at any time, without warning.

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