



# PRODUCT SPECIFICATION SHEET

## Agar medium O (Baird Parker Agar) (DM034B)

### Intended Use

Agar Medium O (Baird Parker Agar) (DM034B) is recommended for isolation and enumeration of coagulase positive *Staphylococci* from food and other materials in compliance with BP.

### Product Summary and Explanation

This medium is cited as Agar medium O British Pharmacopoeia, 2009<sup>(1)</sup> and is recommended for isolation and enumeration of coagulase positive *Staphylococcus aureus*. A number of culture media had been utilized for the recovery of staphylococci from the Tellurite-glycine formulation of Zebovitz et al<sup>(2)</sup> for isolation of *S. aureus* from foods prior to the development of a new formulation by Baird-Parker in 1962.<sup>(3,4)</sup> This scientist subsequently published additional results on the efficacy of the medium for the recovery of coagulase-positive staphylococci.<sup>(5,6)</sup>

*Staphylococcus* species are common contaminants in food, dairy, pharmaceutical and cosmetics related products.<sup>(7)</sup> This medium is recommended for sterility checking of materials to detect *S. aureus*. Baird Parker medium was reported to be the best medium for selective detection of coagulase positive and entero-toxicogenic *Staphylococcus*.<sup>(8)</sup> Coagulase-positive staphylococci can grow and reproduce in cosmetic products. These products are tested for the presence of coagulase-positive staphylococci using standard microbiological methods.<sup>(9)</sup> This medium was found to be less inhibitory to *S. aureus* than other media, at the same time being more selective.<sup>(10,11)</sup> The use of Baird-Parker Agar subsequently was officially adopted by AOAC International and British Pharmacopoeia.<sup>(1, 12)</sup>

### Principles of the Procedure

Agar Medium O (Baird Parker Agar) contains beef extract, yeast extract and pancreatic digest of casein which provides essential mineral, vitamin, nitrogenous compounds and other growth requirements. Sodium pyruvate protects injured cells and helps recovery and stimulates the growth of *S. aureus* without destroying the selectivity. Lithium chloride and potassium tellurite inhibit most of contaminating microflora except *S. aureus*. The reduction of tellurite is a characteristic of coagulase-positive staphylococci, and imparts a black color to the colonies. Glycine, pyruvate enhances growth of *Staphylococcus*. With the addition of egg yolk the medium becomes yellow and opaque. Glycine neutralizes aldehyde, while egg yolk neutralizes phenolic compounds, if any, in the test samples.

The egg yolk additive, in addition to being an enrichment, also aids in the identification process by demonstrating lecithinase activity (egg yolk reaction). *Staphylococci* that contain lecithinase break down the Egg Yolk and cause clear zones around the colonies. A clear zone and grey-black colonies on this medium are diagnostic for coagulase positive *Staphylococci*. Upon further incubation, an opaque zone is developed around colonies, which can be due to lipolytic activity.

### Formula / Liter

Ingredients	Gms / Liter
Pancreatic digest of casein	10.00
Beef extract	5.00
Yeast extract	1.00
Glycine	12.00
Sodium pyruvate	10.00
Lithium chloride	5.00
Agar	20.00
Final pH: 6.8 ± 0.2 at 25°C	
Formula may be adjusted and/or supplemented as required to meet performance specifications	

### Precautions

1. For Laboratory Use only.



## PRODUCT SPECIFICATION SHEET

- IRRITANT. Irritating to eyes, respiratory system, and skin.
- Lithium Chloride is harmful. Avoid all bodily contact and inhalation of vapours. On contact with skin wash with plenty of water immediately

### Directions

- Suspend 63 grams of the medium in 950 ml of distilled water.
- Heat to boiling, to dissolve the medium completely.
- Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
- Cool to 50°C and add aseptically 50 ml concentrated Egg Yolk Emulsion (MS038) and 1 vial of sterile 1% Potassium Tellurite Supplement (MS024).
- Mix well and pour into sterile petri plates.

### Quality Control Specifications

<b>Dehydrated Appearance</b>	Cream to yellow homogeneous free flowing powder
<b>Prepared Medium</b>	Basal medium: Yellow coloured clear to slightly opalescent gel After addition of Egg Yolk Emulsion and Tellurite Emulsion: Yellow coloured opaque gel forms in Petri plates.
<b>Reaction of 6.3% Solution</b>	pH: 6.8 ± 0.2 at 25°C
<b>Gel Strength</b>	Firm, comparable with 2.0% Agar gel

**Expected Cultural Response:** Growth Promotion is carried out in accordance with BP. Cultural response was observed after an incubation at 35-37°C for 18-72 hours. Recovery rate is considered as 100% for bacteria growth on Soybean Casein Digest Agar.

Sr. No.	Organisms	Results to be achieved					
		Inoculum (CFU)	Growth	Lot value (CFU)	Recovery	Colour of colony	Lecithinase
<b>Growth Promotion</b>							
1.	<i>Staphylococcus aureus</i> ATCC 6538	50 -100	good-luxuriant	25-100	≥50 %	grey-black shiny	positive, opaque zone around the colony
<b>Additional Microbiological Testing</b>							
1.	<i>Staphylococcus aureus</i> ATCC 25923	50 -100	good-luxuriant	25-100	≥50 %	grey-black shiny	positive, opaque zone around the colony
2.	<i>Proteus mirabilis</i> ATCC 25933	50 -100	good-luxuriant	25-100	≥50 %	brown-black	negative
3.	<i>Micrococcus luteus</i> ATCC 10240	50-100	poor-good	15-40	30-40%	shades of brown-black (very small)	negative
4.	<i>Staphylococcus epidermidis</i> ATCC 12228	50-100	poor-good	15-40	30-40%	black	negative
5.	<i>Bacillus subtilis</i> ATCC 6633	50-100	none-poor	0-10	0-10	dark brown matt	negative



## PRODUCT SPECIFICATION SHEET

6.	<i>Escherichia coli</i> ATCC 8739	50-100	none-poor	0-10	0-10	large brown black	negative
7.	<i>Escherichia coli</i> ATCC 25922	50-100	none-poor	0-10	0-10	large brown black	negative
8.	<i>Escherichia coli</i> NCTC 9002	50-100	none-poor	0-10	0-10	large brown black	negative

The organisms listed are the minimum that should be used for quality control testing.

### Test Procedure

1. Food samples are macerated in suitable broth medium, diluted as desired and the dilutions spread-inoculated onto the agar surfaces, which should be dry when inoculated.
2. Incubate plates aerobically for 24 hours at 35 - 37°C.
3. Refer appropriate references for detailed instructions of specific procedures.

### Results

1. Proteolytic bacteria produce a clear zone around colony in egg yolk containing media also known as Lecithinase reaction.
2. A clear zone and grey-black colonies on this medium are diagnostic for coagulase positive Staphylococci.
3. Upon further incubation, an opaque zone is developed around colonies, which can be due to lipolytic activity.
4. Refer to appropriate references and standard procedures for interpretation of results.

### Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

### Expiration

Refer to the expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

### Limitations of the Procedure

1. Baird-Parker Agar is selective for coagulase-positive staphylococci, but other bacteria may grow.
2. Identity of *Staphylococcus aureus* isolated on Baird-Parker Agar must be confirmed with a coagulase reaction and deoxyribonuclease test.
3. The sterility of product is confirmed by absence of growth of *Staphylococcus aureus* on this medium.
4. Consult appropriate texts for detailed information and recommended procedures.

### Packaging

**Product Name :** Agar Medium O (Baird Parker Agar)

**Product Code :** DM034B

**Available Pack sizes :** 100gm / 500gm

### References

1. British Pharmacopoeia, 2009, The Stationery office British Pharmacopoeia.
2. Zebovitz, E., Evans J.B. & Niven C.F., (1955), J. Bact; 70:686.
3. Baird-Parker, A.C. 1962, J. Appl. Bact., 25: 12.
4. Baird-Parker, A.C. and Davenport, E., 1965, J. Appl. Bact., 28: 390.
5. Baird-Parker. 1963. J. Gen. Microbiol. 30:409.
6. Baird-Parker. 1965. J. Gen. Microbiol. 38:383.
7. FDA Bacteriological Analytical Manual, 2008, 18th ed., AOAC, Washington, DC
8. Niskanen A and Aalto M, App. Env. Microbiol., 1978, 35:1233
9. Tardio and Baer, 1971, J. Assoc. Off. Anal. Chem., 54:728.





## PRODUCT SPECIFICATION SHEET

---

10. Baird-Parker. 1965. J. Gen. Microbiol. 38:383.
11. Baer, 1971, J. Assoc. Off. Anal. Chem., 54:732.
12. J. Assoc. off. Anal. Chem, 1971, 54:401.

### Further Information

For further information please contact your local MICROMASTER Representative.



**MICROMASTER LABORATORIES PRIVATE LIMITED**  
Unit 38/39, Kalpataru Industrial Estate,  
Off G.B. Road, Near 'R-Mall', Thane (W) - 400607. M.S. INDIA.  
Ph: +91-9320126789/9833630009/9819991103  
Email: [sales@micromasterlab.com](mailto:sales@micromasterlab.com)

DM034BPSS, QAD/FR/024, Rev.00

### Disclaimer :

All Products conform exclusively to the information contained in this and other related Micromaster Publications. Users must ensure that the product(s) is appropriate for their application, prior to use. The information published in this publication is based on research and development work carried out in our laboratory and is to the best of our knowledge true and accurate. Micromaster Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are intended for laboratory, diagnostic, research or further manufacturing use only and not for human or animal or therapeutic use, unless otherwise specified. Statements included herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.

