

## **TECHNICAL DATA SHEET**

### **Starch Agar**

#### **Principle**

Starch agar is simple medium composed of meat extract (equivalent to beef extract), soluble starch. Meat extract in the medium provides nitrogen, carbon sources, amino acids and vitamins. Starch is a complex carbohydrate source which serves as inducer and substrate for amylase production. Agar acts as a solidifying agent. Amylase activity can be detected by flooding the surface of 48 hours old culture on starch agar with iodine solution or vapors. Amylase positive organisms show clear zone around colony while development of blue to purple color indicate absence of amylase production. Size of the clear zone is directly proportional to the starch hydrolyzing activity of the test organism.

**Use:** For detection of starch hydrolysing micro-organisms.

#### **Contents\***

| <b>Ingredients</b>    | <b>Gram/Liter</b> |
|-----------------------|-------------------|
| <b>Meat Extract #</b> | <b>3.000</b>      |
| <b>Starch Soluble</b> | <b>10.000</b>     |
| <b>Agar</b>           | <b>12.000</b>     |
| <b>pH at 25°C</b>     | <b>7.5 ±0.2</b>   |

**\* Formula adjusted for optimum performance and parameters # Equivalent to Beef Extract**

**Directions:** Dissolve 25.00 grams in 1000 ml distilled water. Boil to dissolve the medium completely and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 min, cool it to 42-45 °C and distribute aseptically in petri plates. Ensure complete solidification and inoculate test sample aseptically.

#### **Specimens types analyzed**

Pharmaceutical samples, clinical and non-clinical samples etc.

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## Precautions to be taken

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

## Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

## Quality Control

|                                   |                                                      |
|-----------------------------------|------------------------------------------------------|
| Appearance                        | Light Beige colored free flowing, homogeneous powder |
| Reaction of 2.5% solution         | 7.5 $\pm$ 0.2 at 25 °C                               |
| pH                                | 7.30- 7.70                                           |
| Gelling                           | Firm comparable with 1.2% agar gel                   |
| Color and clarity of ready medium | Pearl white colored opalescent gel                   |
| Growth Promotion properties       | Best at $\leq$ 100 CFU at 32-37 °C for 18-72 h       |
| Indicative properties             | Optimum at $\leq$ 100 CFU at 32-37 °C for 18-48 h    |
| Negative control                  | Performed using sterile distilled water              |

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**Different Microbial Response: Cultural characteristics observed after incubation at 33-37°C for 18-48 hours. (the starch hydrolysis can be detected on exposure to Iodine solution)**

| Organism                     | ATCC  | Growth    | Recovery    | Starch hydrolysis                                 |
|------------------------------|-------|-----------|-------------|---------------------------------------------------|
| <i>Bacillus spizizenii</i>   | 6633  | Luxuriant | $\geq 75\%$ | Clear zone around the colonies (Positive test)    |
| <i>Bacillus cereus</i>       | 10876 | Luxuriant | $\geq 75\%$ | Clear zone around the colonies (Positive test)    |
| <i>Staphylococcus aureus</i> | 25923 | Luxuriant | $\geq 75\%$ | No clear zone around the colonies (Negative test) |
| <i>Escherichia coli</i>      | 8739  | Luxuriant | $\geq 75\%$ | No clear zone around the colonies (Negative test) |
| <i>Escherichia coli</i>      | 25922 | Luxuriant | $\geq 75\%$ | No clear zone around the colonies (Negative test) |

**Storage and Shelf Life:** The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label.

**Note:** Sterilize media immediately after reconstitution.

**Disposal:** To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

## Reference

1. Atlas, R. M. (2005). Handbook of media for environmental microbiology. CRC press.
2. Difco Manual (1998). 11th Edition. Difco Laboratories., Division of Becton Dickinson and Company, Sparks, Maryland, USA.
3. IS: 5887 (Part IV) 1976, Bureau of Indian Standards.
4. Murray P. R., Baron J. H., Pfaller M. A., Tenover J. C. and Tenover F. C., (Eds.), (2003), Manual of Clinical Microbiology, 8<sup>th</sup> Ed., American Society for Microbiology, Washington, D.C.

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