## TGB Agar (Tryptone Glucose Beef Extract Agar) (DM641)

**Intended Use**
TGB Agar (Tryptone Glucose Beef Extract Agar) (DM641) is recommended for enumeration of bacteria from water, air, milk and dairy products.

**Product Summary and Explanation**
Bower and Hucker[1] developed a medium for detecting bacteria in milk and other dairy products. Many investigators compared the performance of Tryptone Glucose Skim Milk Agar to Nutrient Agar for estimating bacteria in milk and other dairy products.[2-4] Glucose agar containing tryptone was used by Prickett[5] to study thermophilic bacteria in milk. This medium, described in *Standard Methods of Milk Analysis*,[6] was prepared in the dehydrated form as Yeast Dextrose Agar. The American Public Health Association (APHA) adopted Tryptone Glucose Beef Extract Agar for use in testing milk and dairy products.[7] For many years, Tryptone Glucose Beef Extract Agar with added milk remained the standard methods medium for dairy products[8] and was also adopted for testing water.[9] Heterotrophic plate count (HPC), formerly known as the standard plate count is a procedure for estimating the number of live heterotrophic bacteria in a sample and for measuring changes that could have occurred during various treatment procedures. This medium is currently recommended in the *Compendium of Methods for the Microbiological Examination of Foods* for performing the heterotrophic plate count procedure in testing bottled water.[10]

**Principles of the Procedure**
TGB Agar (Tryptone Glucose Beef Extract Agar) contains casein enzymic hydrolysate and beef extract which provides nitrogenous and carbonaceous compounds along with other nutrients essential for the growth of organisms. Glucose serves as an energy source.

**Formula / Liter**

| Ingredients | Gms / Liter |
|---|---|
| Casein enzymic hydrolysate | 5.00 |
| Beef extract | 3.00 |
| Glucose | 1.00 |
| Agar | 15.00 |
| Final pH: 7.0 ± 0.2 at 25°C | |
| Formula may be adjusted and/or supplemented as required to meet performance specifications | |

**Precautions**
1. For Laboratory Use only.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

**Directions**
1. Suspend 24 grams of the medium in one liter of distilled water.
2. Heat to boiling, to dissolve the medium completely.
3. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
4. Mix well and pour into sterile Petri plates.

**Quality Control Specifications**

| | |
|---|---|
| **Dehydrated Appearance** | Cream to yellow homogeneous free flowing powder |
| **Prepared Medium** | Light yellow coloured clear to slightly opalescent gel forms in Petri plates |
| **Reaction of 2.4% Solution** | pH : 7.0 ± 0.2 at 25°C |
| **Gel Strength** | Firm, comparable with 1.5% Agar gel |

**Expected Cultural Response:** Cultural characteristics observed after an incubation at 35-37°C for 24-48 hours.

| Sr. No. | Organisms | Results to be achieved | | |
|---|---|---|---|---|
| | | Inoculum (CFU) | Growth | Recovery |
| 1. | *Bacillus subtilis ATCC 6633* | 50-100 | good-luxuriant | >=70% |
| 2. | *Enterococcus faecalis ATCC 29212* | 50-100 | good-luxuriant | >=70% |
| 3. | *Escherichia coli ATCC 25922* | 50-100 | good-luxuriant | >=70% |
| 4. | *Lactobacillus casei ATCC 9595* | 50-100 | good-luxuriant | >=70% |
| 5. | *Pseudomonas aeruginosa ATCC 27853* | 50-100 | good-luxuriant | >=70% |
| 6. | *Staphylococcus aureus ATCC 25923* | 50-100 | good-luxuriant | >=70% |
| 7. | *Streptococcus pyogenes ATCC 19615* | 50-100 | good-luxuriant | >=70% |

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

**Test Procedure**

Refer appropriate references for information regarding the processing and inoculation of bottled water samples and specific test procedures.[10]

**Results**

1. Because bacteria found in bottled water demonstrate a prolonged lag phase during adaptation to growth on Tryptone Glucose Extract Agar, extended incubation beyond 48 hours may be required.
2. Refer appropriate references and test procedures for counting colonies and interpretation of results.[10]

**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. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

**Packaging**

**Product Name : TGB Agar (Tryptone Glucose Beef Extract Agar)**
**Product Code : DM641**
**Available Pack sizes : 100gm / 500gm**

**References**


1. Bowers and Hucker. 1935. Tech. Bull. 228. New York State Agr. Exp. Sta., Geneva, N.Y.
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6. Standard Methods of Milk Analysis, 6th ed. 1934.
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8. American Public Health Association. 1972. Standard methods for the examination of dairy products, 13th ed. American Public Health Association, Washington, D.C.
9. American Public Health Association. 1980. Standard methods for the examination of water and wastewater, 15th ed. American Public Health Association, Washington, D.C.
10. Kim and Feng. 2001. *In* Downes and Ito (ed.), Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C..




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**Further Information**

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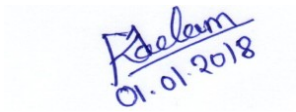
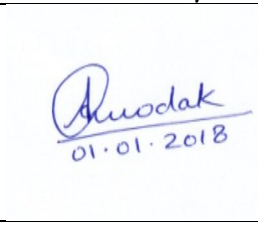
|  |  | |
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