# Malt Agar

## Intended Use

Malt Agar is used for isolating and cultivating yeasts and molds from food and for cultivating yeast and mold stock cultures.

## Summary and Explanation

Malt media for yeasts and molds have been widely used for many years. In 1919, Reddish[1] prepared a satisfactory substitute for beer wort from malt extract. Thom and Church[2] used Reddish's medium for their studies of the aspergilli. Malt Agar was also employed by Fullmer and Grimes[3] for their studies of the growth of yeasts on synthetic media. Malt Agar is included in *Official Methods of Analysis of AOAC International*.[4]

## Principles of the Procedure

Malt Agar contains malt extract which provides the carbon, protein and nutrient sources required for the growth of microorganisms. Agar is the solidifying agent. The acidic pH of Malt Agar allows for optimal growth of molds and yeasts while restricting bacterial growth.

## Formula

**Difco™ and BBL™ Malt Agar**

| Approximate Formula* Per Liter | | |
|---|---|---|
| Malt Extract | 30.0 | g |
| Agar | 15.0 | g |

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

## Directions for Preparation from Dehydrated Product

1. Suspend 45 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.

## User Quality Control

NOTE: Differences in the Identity Specifications and Cultural Response testing for media offered as both **Difco**™ and **BBL**™ brands may reflect differences in the development and testing of media for industrial and clinical applications, per the referenced publications.

### *Identity Specifications*

**Difco™ Malt Agar**

| | |
|---|---|
| Dehydrated Appearance: | Light tan, free-flowing, homogeneous. |
| Solution: | 4.5% solution, soluble in purified water upon boiling. Solution is light to medium amber, very slightly to slightly opalescent. |
| Prepared Appearance: | Light to medium amber, very slightly to slightly opalescent. |
| Reaction of a 4.5% Solution at 25°C: | pH 5.5 ± 0.2 |

### *Cultural Response*

**Difco™ Malt Agar**

Prepare the medium per label directions. For specific quantities of sterile 1:10 dilution of lactic acid, USP (85%) to add to 100 mL of medium to obtain a pH of 3.5 or 4.5, see the Certificate of Analysis for each lot.* Inoculate and incubate at 30 ± 2°C for 42-48 hours (up to 72 hours if necessary).

**For Certificates of Analysis from Technical Services, phone 800-638-8663 or via the internet at http://regdocs.bd.com/regdocs/searchCOA.do.*

| ORGANISM | ATCC™ | INOCULUM CFU | RECOVERY |
|---|---|---|---|
| *Aspergillus brasiliensis (niger)* | 16404 | $10^2$-$10^3$ | Good |
| *Candida albicans* | 10231 | $10^2$-$10^3$ | Good |
| *Saccharomyces cerevisiae* | 9763 | $10^2$-$10^3$ | Good |

### *Identity Specifications*

**BBL™ Malt Agar**

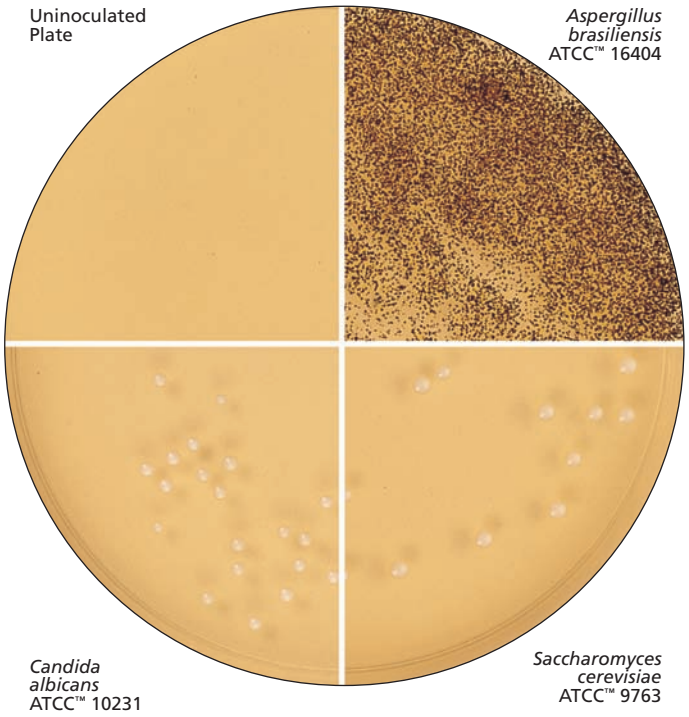
| | |
|---|---|
| Dehydrated Appearance: | Fine, homogeneous, free of extraneous material. |
| Solution: | 4.5% solution, soluble in purified water upon boiling. Solution is medium to dark, yellow to tan, trace hazy to hazy. |
| Prepared Appearance: | Medium to dark, yellow to tan, trace hazy to hazy. |
| Reaction of 4.5% Solution at 25°C: | pH 5.5 ± 0.2 |

### *Cultural Response*

**BBL™ Malt Agar**

Prepare the medium per label directions. Inoculate pour plates with *Saccharomyces cerevisiae* and incubate at 25 ± 2°C for 42-48 hours. Inoculate tubes with other test organisms and incubate at 25 ± 2°C for 7 days.

| ORGANISM | ATCC™ | INOCULUM CFU | RECOVERY |
|---|---|---|---|
| *Aspergillus brasiliensis (niger)* | 16404 | 30-300 | Good |
| *Candida albicans* | 60193 | 30-300 | Good |
| *Saccharomyces cerevisiae* | 9763 | 30-300 | Good |




3. Autoclave at 121°C for 15 minutes. Avoid overheating (and consequent hydrolysis and darkening of the agar with failure to solidify). Note: To lower the pH, add sterile 1:10 lactic acid, USP. DO NOT REHEAT THE MEDIUM.
4. Test samples of the finished product for performance using stable, typical control cultures.

## Procedure

See appropriate references for specific procedures.

## Expected Results

Refer to appropriate references and procedures for results.

## Limitation of the Procedure

Do not heat the medium after addition of acid, as this will hydrolyze the agar and reduce its solidifying properties.

## References

1. Reddish. 1919. Abstr. Bacteriol. 3:6.
2. Thom and Church. 1926. The aspergilli. Williams & Wilkins, Baltimore, Md.
3. Fulmer and Grimes. 1923. J. Bacteriol. 8:585.
4. Horwitz (ed.). 2007. Official methods of analysis of AOAC International, 18th ed., online. AOAC International, Gaithersburg, Md.

## Availability

### Difco™ Malt Agar

AOAC BAM

| | | |
|---|---|---|
| Cat. No. | 224200 | Dehydrated – 500 g |
| | 224100 | Dehydrated – 10 kg |

### BBL™ Malt Agar

AOAC BAM

| | | |
|---|---|---|
| Cat. No. | 211401 | Dehydrated – 500 g |