

## UNIVERSAL BEER AGAR (UBA)

**CAT N°: 1562**

For the cultivation of important microorganisms in the beer industry

### FORMULA IN g/l

Peptonized Milk	15.00	Sodium Chloride	0.01
Yeast Extract	10.00	Manganese Sulfate	0.01
Dextrose	10.00	Magnesium Sulfate	0.01
Tomato Juice	7.00	Ferrous Sulfate	0.01
Monopotassium Phosphate	0.50	Bacteriological Agar	12.00
Dipotassium Phosphate	0.50		

**Final pH 6.3 ± 0.2 at 25°C**

### PREPARATION

Suspend 55 grams of the medium in 750 ml of distilled water. Mix well and dissolve by heating with frequent agitation. Boil for one minute until complete dissolution. Add 250 ml of beer without gas when the medium is still hot. Mix with agitation. Dispense into appropriate containers and sterilize in autoclave at 121°C for 10 minutes. Cool to 45-50°C, mix well and dispense into plates. The prepared medium should be stored at 8-15°C. The color is amber, slightly opalescent.

The dehydrated medium should be homogeneous, free-flowing and beige in color. If there are any physical changes, discard the medium.

### USES

UNIVERSAL BEER AGAR is a non-selective agar rich in nutrients that supports the growth and recovery of microorganisms of significance in the brewing industry.

The medium isolates bacteria and yeasts, capable of growing under brewing conditions, which are of real significance for the brewer.

Yeast extract is a source of vitamins, particularly of the B-group. Peptonized milk contains lactose as an energy source. Tomato juice is a source of carbon, protein and nutrients. Dextrose is a fermentable carbohydrate providing carbon and energy. Potassium phosphates act as a buffer system. Magnesium sulfate, Ferrous sulfate and Manganese sulfate are sources of ions that stimulate metabolism. Sodium chloride supplies essential electrolytes for transport and osmotic balance. Bacteriological agar is the solidifying agent. The incorporation of beer in the medium adds hop constituents and alcohol which eliminate many airborne contaminants not originating from pitching yeasts or beer, and therefore minimizing false positive results. Also, it stimulates the growth of beer spoilage organisms, such as lactobacilli, pediococci, *Acetobacter*, and *Zymomonas spp.*

For the detection of bacterial contaminants in pitching yeasts, cycloheximide (1 mg/l) may be added.

Incubate at 28-30°C and observe after 3 days. Incubate aerobically to detect *Acetobacter* and anaerobically to detect *Lactobacillus microaerophilus*, pediococci and *Zymomonas*.

### MICROBIOLOGICAL TEST

Los siguientes resultados fueron obtenidos a partir de cepas patrón, después de incubación a temperatura de 28-30°C y observados después de 3 días. Incubar aeróbicamente para detectar Acinetobacter y anaeróbicamente para detectar lactobacillus microaerofilos, pediococcus y Zymomonas spp..

Microorganisms	Growth
<i>Lactobacillus fermentum</i> ATCC 9338	Good
<i>Pediococcus damnosus</i> ATCC 29358	Scarce
<i>Saccharomyces cerevisiae</i> ATCC 9763	Good
<i>Escherichi coli</i> ATCC 25922	Good

## BIBLIOGRAPHY

Kozulis, J. A. AND Page, H.E.A. A. new universal beer agar medium for the enumeration of wort and beer microorganisms. Proc.Am.Brew. Chem 52-58, (1968)

## STORAGE

Once opened keep powdered medium closed to avoid hydration.

