

Bacto™ Yeast Extract • Yeast Extract, UF

Yeast Extract, LD • Bacto™ Yeast Extract, Technical

Yeast Extract

Intended Use

Bacto Yeast Extract, Yeast Extract, UF (ultra-filtered), Yeast Extract, LD, Bacto Yeast Extract, Technical and Yeast Extract are used in preparing microbiological culture media.

Summary and Explanation

Bacto Yeast Extract, Yeast Extract, UF, Yeast Extract, LD, Bacto Yeast Extract, Technical and Yeast Extract are concentrates

of the water-soluble portion of *Saccharomyces cerevisiae* cells that have been autolyzed. The autolysis is carefully controlled to preserve the naturally occurring B-complex vitamins. Yeast extract is considered a non-animal product and is used extensively for many non-animal formulations for bacterial, fungal, mammalian and insect cell culture.

Bacto Yeast Extract has been considered one of the most complete and versatile of the fermentation bioproducts avail-

User Quality Control

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

Identity Specifications

Bacto™ Yeast Extract

Dehydrated Appearance: Light to medium beige, free-flowing, homogeneous.

Solution: 1.0% and 2.0% solutions, soluble in purified water. 1.0% solution is light to medium amber, clear, may have a very slight precipitate. 2.0% solution is medium amber, clear, may have a very slight precipitate.

Difco™ Yeast Extract, UF

Dehydrated Appearance: Fine, homogeneous, may contain up to a small amount of minute light to dark tan particles.

Solution: 2.0% solution, soluble in purified water. Solution is light to dark, yellow to tan, clear to slightly hazy.

Reaction of 2.0% Solution at 25°C: pH 5.4-7.2

Difco™ Yeast Extract, LD

Dehydrated Appearance: Fine, homogeneous, may contain up to a small amount of minute light to dark tan particles.

Solution: 2.0% solution, soluble in purified water. Solution is light to dark, yellow to tan, clear to slightly hazy.

Bacto™ Yeast Extract, Technical

Dehydrated Appearance: Light to medium beige, free-flowing, homogeneous.

Solution: 2.0% solution, soluble in purified water. Solution is medium amber, clear to very slightly opalescent.

Identity Specifications

BBL™ Yeast Extract

Dehydrated Appearance: Fine, homogeneous, may contain up to a small amount of minute light to dark, tan particles.

Solution: 2.0% solution, soluble in purified water. Solution is clear to slightly hazy.

Reaction of 2.0% Solution at 25°C: pH 5.4-7.2

Cultural Response

BBL™ Yeast Extract

Prepare a sterile solution containing 10.0 g of Yeast Extract, 2.5 g of sodium chloride and 6.5 g of agar in 500 ml. of purified water. Adjust the final pH to 7.2-7.5. Inoculate and incubate plates at 35 ± 2°C for 3 days (incubate streptococci with 3-5% CO₂; incubate *C. sporogenes* anaerobically).

ORGANISM	ATCC™	inoculum CFU	RECOVERY
<i>Candida albicans</i>	10231	10 ⁶ -10 ⁷	Good
<i>Clostridium sporogenes</i>	11433	10 ⁶ -10 ⁷	Good
<i>Escherichia coli</i>	25922	10 ⁶ -10 ⁷	Good
<i>Staphylococcus aureus</i>	9340	10 ⁶ -10 ⁷	Good
<i>Streptococcus pneumoniae</i>	6305	10 ⁶ -10 ⁷	Good
<i>Streptococcus pyogenes</i>	4913	10 ⁶ -10 ⁷	Good

Cultural Response

Bacto™ Yeast Extract

Prepare a solution containing 1% Bacto Yeast Extract and 0.5% sodium chloride. Adjust the pH to 7.2 ± 0.2 using dilute NaOH. Dispense into tubes and autoclave. Inoculate and incubate at 35 ± 2°C for 18-48 hours.

ORGANISM	ATCC™	inoculum CFU	RECOVERY
<i>Neisseria meningitidis</i>	13090	10-100	Fair to good
<i>Staphylococcus aureus</i>	25922	10-100	Good
<i>Streptococcus pneumoniae</i>	6305	10-100	Good

Bacto™ Yeast Extract, Technical

Prepare a solution containing 2% Bacto Yeast Extract, Technical and 0.5% sodium chloride. Adjust the pH to 7.2-7.4 using dilute NaOH. Dispense into tubes and autoclave. Inoculate and incubate at 35 ± 2°C for 18-48 hours.

ORGANISM	ATCC™	inoculum CFU	RECOVERY
<i>Escherichia coli</i>	25922	10-100	Good
<i>Streptococcus pyogenes</i>	19475	10-100	Good

able. It has been a valuable ingredient for the microbiological assay of vitamins. Yeast extract is also of value in the assay of antibiotics. B factor, a growth substance necessary for the production of rivanin in a *Neocardia* sp., can be isolated from yeast extract.¹

Yeast Extract, UF is ultra-filtered and specifically designed for tissue culture applications. With its low endotoxin level and high content of naturally occurring B vitamins, it is an ideal substitute for fetal bovine serum. It has an endotoxin level of less than or equal to 500 EU/g.

Yeast Extract, LD was created to eliminate the problem of dust inhalation when handling large quantities of yeast extract. Yeast Extract, Yeast Extract, UF and Yeast Extract, LD are processed from the same culture of *Saccharomyces*.

Bacto Yeast Extract, Technical and Yeast Extract were developed to provide products priced for the biotechnology/pharmaceutical market with acceptable clarity and growth promoting characteristics.

Media formulations containing yeast extract are specified in standard methods for various applications.²⁻⁴

Principles of the Procedure

Bacto Yeast Extract, Yeast Extract, UF, Yeast Extract, LD, Bacto Yeast Extract, Technical and Yeast Extract are prepared by growing baker's yeast, *Saccharomyces* sp., in a carbohydrate-rich plant medium. The yeast is harvested, washed and resuspended

References

1. Kinsgipich, Emily, Smith, Eugene and Rogers, (1963) J. Institute, 17:187.
2. Sherman (ed.), (1955) Methods of analysis of foods, 10th ed., volume 10 (10th), International, London, 1955.
3. U.S. Food and Drug Administration, (1955) Microbiological analytical manual, volume 1 (10th), International, London, 1955.
4. Sherman (ed.), (1955) Compendium of methods for the microbiological examination of foods, 10th ed., American Public Health Association, Washington, D.C.
5. U.S. Environmental Protection Agency (EPA), (1980) Improved examination methods for the microbiological water quality indicators *Enterobacter* and *Escherichia coli*, EPA-611/6-77004, Office of Water, Washington, D.C.
6. Wiley and Wiley (eds.), (1954) Standard methods for the examination of dairy products, 17th ed., American Public Health Association, Washington, D.C.
7. Eaton, Hae and Reed (eds.), (1955) Standard methods for the examination of water and wastewater, 17th ed., volume 1, American Public Health Association, Washington, D.C.
8. U.S. Department of Agriculture, Microbiology laboratory guidelines, volume 1 (Food Safety and Inspection Service, USDA, Washington, D.C.).

Availability

Bacto™ Yeast Extract

PRODUCT	FORM	CONCENTRATION	UNIT	AMOUNT	STATUS
Cat. No.	212750	Dehydrated – 500 g			
	212751	Dehydrated – 2 kg			
	212752	Dehydrated – 10 kg			

Difco™ Yeast Extract, UF

Cat. No.	210939	Dehydrated – 500 g			
	210940	Dehydrated – 10 kg			

Difco™ Yeast Extract, LD

Cat. No.	210939	Dehydrated – 500 g			
	210941	Dehydrated – 10 kg			

Bacto™ Yeast Extract, Technical

Cat. No.	288670	Dehydrated – 500 g			
	288610	Dehydrated – 10 kg			

BBL™ Yeast Extract

Cat. No.	211929	Dehydrated – 454 g			
	211930	Dehydrated – 5 lb (2.3 kg)			
	211931	Dehydrated – 25 lb (11.3 kg)			

in water, where it undergoes autolysis, or self-digestion. Yeast extract is the total soluble portion of this autolytic action. The autolytic activity is stopped by a heating step. The resulting yeast extract is then filtered to produce a clear product and subsequently made into a powder by a spray-drying process.

Bacto Yeast Extract, Yeast Extract, UF, Yeast Extract, LD, Bacto Yeast Extract, Technical and Yeast Extract provide vitamins, nitrogen, amino acids and carbon in microbiological culture media.

Typical Analysis

Refer to Product Tables in the Reference Guide section of this manual.

Directions for Preparation from Dehydrated Product

Refer to the final concentration of Bacto Yeast Extract, Yeast Extract, UF, Yeast Extract, LD, Bacto Yeast Extract, Technical and Yeast Extract in the formula of the medium being prepared. Add appropriate product as required.

Procedure

See appropriate references for specific procedures using Bacto Yeast Extract, Yeast Extract, UF, Yeast Extract, LD, Bacto Yeast Extract, Technical and Yeast Extract.

Expected Results

Refer to appropriate references and procedures for results.