Instructions For Use
ENGLISH

WL Nutrient Agar

Medium for the cultivation and enumeration of yeasts, moulds and bacteria in the brewing and other fermentation industries.

DESCRIPTION

WL (Wallerstein Laboratory) Nutrient Agar is a medium used for the cultivation and enumeration of fungal and bacterial species that can be encountered in beer brewing and other industrial fermentations.

This medium meets the formula developed by Green and Gray while studying various fermentation processes.

TYPICAL FORMULA*	(g/litre)
Enzymatic Digest of Casein	5.0
Yeast Extract	4.0
Dextrose	50.0
Monopotassium Phosphate	0.55
Potassium Chloride	0.425
Calcium Chloride	0.125
Magnesium Sulfate	0.125
Manganese Sulfate	0.0025
Ferric Chloride	0.0025
Bromcresol Green	0.022
Agar	20.0
Final pH 5.5 ± 0.2 at 25°C	

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

PREPARATION

Dehydrated medium	Suspend 80 g of the powder in 1 liter of distilled or deionized water. Mix well. Heat to boil shaking frequently until completely dissolved. Sterilize in autoclave at 121°C for 15 minutes.

METHOD PRINCIPLE

Enzymatic digest of casein provides amino acids, nitrogen, carbon, vitamins and minerals. Yeast extract is a source of vitamins, particularly of B-group. Dextrose id the fermentable carbohydrate. Monopotassium Phosphate acts as a buffer. Potassium chloride, calcium chloride, and ferric chloride are essential ions and help to maintain osmotic balance of the medium. Magnesium sulfate and manganese sulfate are sources of divalent cations. Bromcresol green is a pH indicator. Agar is the solidifying agent

TEST PROCEDURE AND EVALUATION

Inoculate the medium by the pour plate method, membrane filtration technique (60 mm Plate) or by spreading the sample over the agar surface (0.1 ml of the initial suspension or decimal dilution onto a 90 mm Plate).

Incubate the plates inverted for up to 3 days at 30 ± 2°C for optimal growth of fungi or at 35 ± 2°C for bacteria. Alternative incubation conditions may be chosen depending on the microorganisms target of the test.

Examine the plates for growth and enumerate bacterial and fungal colonies.

APPEARANCE

Dehydrated medium: free-flowing, homogeneous, light beige with greenish tint.
Prepared medium: slightly opalescent, blue to greenish blue.

STORAGE

The powder is very hygroscopic, store the powder at 10-30°C, in a dry environment, in its original container tightly closed. Store prepared plates at 10-25°C away from light. Do not use the product beyond its expiry date on the label or if product shows any evidence of contamination or any sign of deterioration.

SHELF LIFE

Dehydrated medium: 4 years.
Ready-to-use plates: 6 months.

QUALITY CONTROL

The medium is inoculated with the microbial strains indicated in the QC table.
Inoculum for productivity: 50-100 CFU.

QC Table.

Strain		Incubation	Specification
Escherichia coli	ATCC® 25922	40-72 h / 35 ± 2°C	Good growth
Lactobacillus fermentum	ATCC® 9338		Good growth
Saccharomyces cerevisiae	ATCC® 9763	40-72 h / 30 ± 2°C	Good growth

WARNING AND PRECAUTIONS

The product does not contain hazardous substances in concentrations exceeding the limits set by current legislation and therefore is not classified as dangerous. It is nevertheless recommended to consult the safety data sheet for its correct use. The product is intended professional use only and must be used by properly trained operators.

DISPOSAL OF WASTE

Disposal of waste must be carried out according to national and local regulations in force.

BIBLIOGRAPHY

1. Gray PP (1951) Some advances in microbiological control for beer quality. Wallerstein Lab. Comm., 14; 169-183.
2. Green SR and Gray PP (1951): A differential procedure for bacteriological studies useful in the fermentation industries. Wallerstein Lab. Comm., 14; 289-295.
3. Green SR and Gray PP (1950) Paper read at Am. Soc. of Brewing Chemists Meeting; Wallerstein Lab. Comm., 12; 43.
4. Green SR and Gray PP (1950) A differential procedure applicable to bacteriological investigation in brewing. Wallerstein Lab. Comm., 13;357-366.

The product is available in the various configurations listed below. There may be additional product ref. numbers as well. For an updated listing of available products, visit **liofilchem.com**

Product	Format	Packaging	Ref.
WL Nutrient Agar	60 mm Plate (membrane placement)	20 (4x5) plates	163712
WL Nutrient Agar	Dehydrated medium	100 g of powder	620234
WL Nutrient Agar	Dehydrated medium	500 g of powder	610234

TABLE OF SYMBOLS

LOT Batch code	Keep away from sunlight	Manufacturer	Use by	Fragile, handle with care
REF Catalogue number	Temperature limitation	Contains sufficient for <n> tests	Caution, consult Instruction For Use	Do not reuse

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LIOFILCHEM® s.r.l.
Via Scozia, 64026 Roseto degli Abruzzi (TE) Italy
Tel. +39 0858930745 Fax +39 0858930330 www.liofilchem.com liofilchem@liofilchem.com