



PRODUCT DESCRIPTION

AS-1398 | 2× YT Broth

www.ausamics.com.au

2× YT Broth

Double-Strength Yeast Tryptone Broth — Rich Liquid Medium for High-Density *E. coli* Growth

Catalogue Number: AS-1398

Application	Medium Type	Typical pH	HS Code
High-density <i>E. coli</i> & recombinant	Non-selective liquid broth	7.0 ± 0.2 at 25 °C	3821.00.00

Overview

2× YT Broth (Double-Strength Yeast Tryptone Broth) is a nutrient-rich, non-selective liquid culture medium formulated to support rapid growth and high cell density of bacteria, particularly *Escherichia coli* used in molecular biology and recombinant DNA applications.

Compared with standard LB Broth, 2× YT Broth contains double the tryptone (16.0 g/L) and yeast extract (10.0 g/L), supplying increased peptides, amino acids, vitamins, and growth factors. This enhanced nutrient availability promotes faster growth rates, higher biomass yield, and improved plasmid production — making it ideal for cloning, expression, and phage-related workflows.

Comparison — 2× YT Broth vs LB Broth vs SOB

Component	2× YT (AS-1398)	LB Miller (AS-1270)	SOB
Tryptone	16.0 g/L	10.0 g/L	20.0 g/L
Yeast Extract	10.0 g/L	5.0 g/L	5.0 g/L
NaCl	5.0 g/L	10.0 g/L	0.5 g/L
Total solids	31.0 g/L	25.0 g/L	25.5 g/L
Best for	High-density, fast growth	Standard routine culture	High-efficiency transformation

Principle of the Medium

Tryptone (16.0 g/L)

High-concentration pancreatic digest of casein — primary source of peptides, amino acids, nitrogen, and carbon for rapid *E. coli* growth



PRODUCT DESCRIPTION

AS-1398 | 2× YT Broth
www.ausamics.com.au

Yeast Extract (10.0 g/L)	Double-strength supply of B-vitamins, trace elements, nucleotides, coenzymes, and growth factors to sustain high cell density
Sodium Chloride (5.0 g/L)	Maintains osmotic balance compatible with most laboratory E. coli strains
No agar	Liquid formulation enables uniform aeration, efficient nutrient uptake, and high biomass accumulation in shaken cultures

Typical Composition (per litre)

Component	CAS Number	Function	Amount
Tryptone (Pancreatic Digest of Casein)	73049-73-7	High-level nitrogen, carbon, amino acids	16.0 g
Yeast Extract	8013-01-2	Double-strength vitamins, growth factors	10.0 g
Sodium Chloride	7647-14-5	Osmotic balance	5.0 g

Total per litre: 31.0 g | Final pH: 7.0 ± 0.2 at 25 °C

Key Features & Benefits

- Double-strength tryptone and yeast extract for enhanced growth and biomass yield
- Supports faster growth rates than standard LB Broth — higher OD₆₀₀ overnight
- Ideal for high-density liquid culture prior to protein induction (IPTG)
- Improved plasmid yield per culture due to enriched nutrient environment
- Suitable for antibiotic-supplemented liquid cultures
- Compatible with all standard E. coli K-12 and B strains
- Widely used in phage display, M13 phage propagation, and panning workflows

Applications

Molecular Biology & Genetics

- High-density cultivation of E. coli for plasmid amplification and miniprep/midiprep
- Growth of recombinant and expression strains (BL21, Rosetta, ArcticExpress)
- Pre-induction liquid culture prior to IPTG addition for protein expression
- Antibiotic-supplemented liquid selection cultures
- Overnight cultures for downstream cloning and transformation



PRODUCT DESCRIPTION

AS-1398 | 2× YT Broth
www.ausamics.com.au

Phage & Protein Expression

- Bacteriophage propagation — M13, lambda, T4 phage
- High-density liquid cultures for protein expression and purification
- Growth of host strains prior to induction
- Phage display library amplification

Research & Teaching Laboratories

- Routine bacterial culture where fast growth or high biomass is required
- Demonstration of nutrient-rich vs minimal media growth kinetics
- Microbial physiology and growth rate studies

Preparation Instructions

1. Dissolve 31.0 g of dehydrated medium in 1 litre of purified or demineralised water.
2. Heat with agitation until completely dissolved.
3. Verify and adjust pH to 7.0 ± 0.2 if required using 1 M NaOH or 1 M HCl.
4. Dispense into suitable culture flasks, tubes, or bottles.
5. Sterilise by autoclaving at 121 °C for 15 minutes.
6. Cool to room temperature before use or inoculation.
7. Add filter-sterilised antibiotics or supplements aseptically as required.

Note: Do not add agar to this formulation — it is designed as a liquid broth. For solid 2× YT Agar plates, use AS-1395 (2× YT Agar).

Common Antibiotic Supplements

Antibiotic	Working Concentration	Stock Concentration	Storage
Ampicillin	100 µg/mL	100 mg/mL in water	-20 °C
Kanamycin	50 µg/mL	50 mg/mL in water	-20 °C
Chloramphenicol	25 µg/mL	25 mg/mL in ethanol	-20 °C
Tetracycline	12.5 µg/mL	12.5 mg/mL in ethanol	-20 °C, protect from light
Gentamicin	10 µg/mL	10 mg/mL in water	-20 °C



PRODUCT DESCRIPTION

AS-1398 | 2× YT Broth

www.ausamics.com.au

Incubation & Typical Growth

Inoculate with a single colony or from a frozen stock. Incubate with shaking (200–250 rpm) at 37 °C. Cultures in 2× YT Broth typically reach $OD_{600} >3.0$ –4.0 overnight — significantly higher than in standard LB Broth.

Organism	Expected Result	Incubation
E. coli K-12 (DH5α, TOP10)	Vigorous growth — turbid broth, $OD_{600} >3.0$ overnight	37 °C, shaking, 12–16 h
E. coli BL21(DE3)	Vigorous growth — high biomass for protein expression	37 °C, shaking, 3–4 h to $OD_{600} 0.6$ –0.8
E. coli XL1-Blue	Good growth — M13/phage compatible	37 °C, shaking, 12–16 h
Salmonella typhimurium ATCC 14028	Good growth	37 °C, shaking, 12–16 h

Storage & Stability

Dehydrated powder	Store at 15–30 °C in a cool, dry, tightly closed container
Protect from	Moisture, direct light, and extreme temperatures
Prepared broth	2–8 °C, use within 1 week
Shelf life (dehydrated)	As per labelled expiry date
Do not use if	Contamination, precipitation, turbidity, or pH shift observed

Quality & Compliance

Manufactured under controlled conditions for batch-to-batch consistency. Performance tested against ATCC reference organisms prior to release. Compatible with protocols described in Sambrook & Russell (Molecular Cloning), Current Protocols in Molecular Biology, and phage display methodologies (Barbas et al., Phage Display: A Laboratory Manual, CSHL Press).

Customs & Trade Information

HS / AHECC Code 3821.00.00



PRODUCT DESCRIPTION

AS-1398 | 2× YT Broth

www.ausamics.com.au

Description

Prepared culture media for the development or maintenance of microorganisms

Country of Origin

Australia

Disclaimer

This product is manufactured and supplied by AuSaMics Pty Ltd for laboratory and research use only. It is not intended for human or veterinary consumption, therapeutic use, or in vitro diagnostic procedures without appropriate validation. AuSaMics Pty Ltd makes no representations or warranties, express or implied, regarding the fitness of this product for any particular purpose beyond its stated intended use. Users are solely responsible for compliance with all applicable laws, regulations, and safety requirements. AuSaMics Pty Ltd shall not be liable for any direct, indirect, incidental, or consequential damages arising from the use or misuse of this product. All information provided is believed to be accurate at the time of publication and is subject to change without notice.