

CATALOG # 120493-1
Package Size: 500 mg

Zymolyase®-100T
 (from *Arthrobacter luteus*)

Zymolyase® -100T, produced by a submerged culture of *Arthrobacter luteus*⁽¹⁾, is a new enzyme preparation which lyses effectively cell walls of viable yeast cells^(2, 3). This enzyme is a preparation partially purified by affinity chromatography⁽⁹⁾. An essential enzyme responsible for lysis of viable yeast cells in this preparation is β-1, 3-glucan laminaripentaohydrolase. It hydrolyzes linear glucose polymers with β-1, 3-linkages and releases specifically laminaripentaose as the main and minimum product unit^(4, 5, 10, 11).

The extent of lysis of yeast cells by Zymolyase® -100T varies with yeast strain, growth stage of yeast, or cultural condition⁽⁶⁻⁸⁾.

Zymolyase® -100T shows 100,000 units/g of the lytic activity, defined after, toward brewer's yeast cells (*Saccharomyces cerevisiae*, resting stage) or toward yeast cells of *Saccharomyces uvarum* IFO 0565 cultured statically in malt extract medium (Malt extract 2 g, peptone 0.5 g, water 100 ml) at 20°C for 34 hours.

SPECIFICATIONS:

<i>Appearance:</i>	Lyophilized powder	
<i>Activity:</i>	100,000 units/g	
<i>Essential enzyme:</i>	β-1, 3-glucan laminaripentaohydrolase	
<i>Other activities contained:</i>	β-1, 3-glucanase	ca. 1.0 x 10 ⁷ units/g
	protease	ca. 1.7 x 10 ⁴ units/g
	mannanase	ca. 6.0 x 10 ⁷ units/g
	<i>(See reference No. 3 as to the definition of each enzyme unit. Each activity varies more or less among lots.)</i>	
	DNase, RNase	not detected
<i>Optimum pH and temperature:</i>	pH 7.5, 35°C (for lysis of viable yeast cells)	
	pH 6.5, 45°C (for hydrolysis of yeast glucan)	
<i>Stable pH:</i>	5-10	
<i>Heat stability:</i>	The lytic activity is lost on incubation at 60°C for 5 minutes.	
<i>Specificity (lytic spectrum)⁽⁵⁾:</i>	<i>Ashbya, Candida, Debaryomyces, Eremothecium, Endomyces, Hansenula, Hanseniaspora, Kloekera, Kluyveromyces, Lipomyces, Metschikowia, Pichia, Pullularia, Torulopsis, Saccharomyces, Saccharomcopsis, Saccharomycodes, Schwanniomyces, etc.</i>	
<i>Activators:</i>	SH compound such as cystein, 2-mercaptoethanol of dithiothreitol	

ASSAY FOR ENZYME ACTIVITY:

Unit Definition

One unit of lytic activity is defined as that amount which indicates 30% of decrease in absorbance at 800 nm (A800) of the reaction mixture under the following condition.

AMSBIO | www.amsbio.com | info@amsbio.com

 **UK & Rest of the World**
 184 Park Drive, Milton Park
 Abingdon OX14 4SE, UK
 T: +44 (0)1235 828 200
 F: +44 (0) 1235 820 482

 **North America**
 1035 Cambridge Street,
 Cambridge, MA 02141
 T: +1 (617) 945-5033 or
 T: +1 (800) 987-0985
 F: +1 (617) 945-8218

 **Germany**
 Bockenheimer Landstr. 17/19
 60325 Frankfurt/Main
 T: +49 (0) 69 779099
 F: +49 (0) 69 13376880

 **Switzerland**
 Centro Nord-Sud 2E
 CH-6934 Bioggio-Lugano
 T: +41(0) 91 604 55 22
 F: +41(0) 91 605 17 85

Method*Reaction mixture*

Enzyme:	0.012-0.024 mg/ml solution	1 ml
Substrate:	Brewer's yeast cell suspension (2 mg dry weight/ml)	3 ml
Buffer:	M/15 Phosphate buffer, pH 7.5	5 ml
Distilled water:		1 ml
<hr/>		
Total Volume:		10 ml

Procedure

After incubation for 2 hours at 25°C with gentle shaking, A800 of the mixture is determined. As a reference, 1 ml of distilled water is used instead of enzyme solution.

Calculation

Percentage decrease in A800 = (A800 of reference - A800 of reaction mixture) x 100/initial A800 of reference when 60% of A800 decrease, equivalent to 2 units, is observed in the reaction system, the brewer's yeast cells are completely lysed, namely 1 unit of Zymolyase® -100T lyses 3 mg dry weight of brewer's yeast.

PRECAUTIONS ON USE:

Use a sterilized filter except nitrocellulose when a sterilized enzyme solution is needed. Use as suspension, since the solubility of Zymolyase® -100T is very low. In case of using a sterilized enzyme solution more than 0.05%, dissolve Zymolyase® -100T with a buffer solution (pH 7.5) containing 5% glucose to make 2% solution, remove insoluble substances, filtrate with a sterilized filter, and dilute.

STORAGE:

Stable for least 1 year at 2°C. About 90% of the lytic activity is lost when stored at 30°C for 3 months.

REFERENCES:

- 1) Kaneko, T., Kitamura, K and Yamamoto, Y.: *J. Gen. Appl. Microbiol.*, **15**, 317 (1969)
- 2) Kitamura, K., Kaneko, T. and Yamamoto, Y.: *Arch. Biochem. Biophys.*, **145**, 402 (1971)
- 3) Kitamura, K., Kaneko, T. and Yamamoto, Y.: *J. Gen. Appl. Microbiol.*, **18**, 57 (1972)
- 4) Kitamura, K. and Yamamoto, Y.: *Arch. Biochem. Biophys.*, **153**, 403 (1972)
- 5) Kaneko, T., Kitamura, K. and Yamamoto, Y.: *Agric. Biol. Chem.*, **37**, 2295 (1973)
- 6) Kitamura, K., Kaneko, T. and Yamamoto, Y.: *J. Gen Appl. Microbiol.*, **20**, 323 (1974)
- 7) Kitamura, K. and Yamamoto, Y.: *Agric. Biol. Chem.*, **45**, 1761 (1981)
- 8) Katamura, K. and Tanabe, K.: *Agric. Biol. Chem.*, **46**, 553 (1982)
- 9) Katamura, K.: *J. Ferment. Technol.*, **60**, 257 (1982)
- 10) Kitamura, K.: *Agric. Biol. Chem.*, **46**, 963 (1982)
- 11) Kitamura, K.: *Agric. Biol. Chem.*, **46**, 2093 (1982)
- 12) Calza R. E., Schroeder A. L.: *J. Gen. Microbiol.*, **129**, 413 (1983)
- 13) Iizuka Masaru, Torii Yasuhiko, Yamamoto Takehiko: *Agric. Biol. Chem.*, **47** (12), 2267 (1983)
- 14) Shibata Nobuyuki, Kobayashi Hidemitsu, tojo Menehiro, Suzuki Shigeo: *Arch. Biochem. Biophys.*, **251** (2), 697 (1986)
- 15) Iijima Y., Yanagi S. O.: *Agric. Biol. Chem.*, **50** (7), 1855 (1986)
- 16) Herrero Enrique, Sanz Pascual. Sentandreu Rafael: *J. Gen. Microbiol.*, **133** (10), 2895 (1987)

NOTE:

This product is for laboratory use only - not for drug, household or other uses.

AMSBIO | www.amsbio.com | info@amsbio.com



UK & Rest of the World
184 Park Drive, Milton Park
Abingdon OX14 4SE, UK
T: +44 (0)1235 828 200
F: +44 (0) 1235 820 482



North America
1035 Cambridge Street,
Cambridge, MA 02141
T: +1 (617) 945-5033 or
T: +1 (800) 987-0985
F: +1 (617) 945-8218



Germany
Bockenheimer Landstr. 17/19
60325 Frankfurt/Main
T: +49 (0) 69 779099
F: +49 (0) 69 13376880



Switzerland
Centro Nord-Sud 2E
CH-6934 Bioggio-Lugano
T: +41(0) 91 604 55 22
F: +41(0) 91 605 17 85