

Product Information

α -Amylase, Heat-stable

For use in Total Dietary Fiber Assay Kit, TDF100A

A3306

Product Description

CAS Registry Number: 9000-85-5

Enzyme Commission (EC) Number: 3.2.1.1

Synonym: 1,4- α -D-Glucan-glucanohydrolase

α -Amylase breaks down starch into sugars, by hydrolysis of the α -(1 \rightarrow 4) glucan linkages in polysaccharides of three or more α -(1 \rightarrow 4) linked D-glucose units, without hydrolyzing the α -(1 \rightarrow 6) bond. α -Amylase occurs in many natural sources, including animals, plants, and notably in microorganisms, such as various *Bacillus* species.¹

α -Amylase is well-known as a heat-stable enzyme.² For example, α -amylase from *Bacillus licheniformis* NCIB 6346 has been reported to maintain >98% of activity after 60 minutes at pH 6.2 at 85 °C.³

Various publications have reported use of this product for dietary fiber analysis.⁴⁻¹⁷ Several theses¹⁸⁻²⁵ and dissertations²⁶⁻³² have cited use of product A3306 in their protocols.

Product

This product is supplied as a solution. Each lot is carefully use-tested for suitability as a component in the Total Dietary Fiber Assay Kit (Cat. No. TDF100A).

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

It is recommended to store A3306 at 2-8 °C.

References

1. Divakaran, D. *et al.*, *Braz. J. Microbiol.*, **42(4)**, 1397-1404 (2011).
2. Medda, S., and Chandra, A., *J. Appl. Bacteriol.*, **48(1)**, 47-58 (1980).
3. Morgan, F.J., and Priest, F.G., *J. Appl. Bacteriol.*, **50(1)**, 107-114 (1981).
4. Van Soest, P.J. *et al.*, *J. Dairy Sci.*, **74(10)**, 3583-3597 (1991).
5. Lee, S.C. *et al.*, *J. AOAC Int.*, **78(3)**, 724-729 (1995).
6. Sambucetti, M.E., and Zuleta, A., *Cereal Chem.*, **73(6)**, 759-761 (1996).
7. Saura-Calixto, F. *et al.*, *J. Agr. Food Chem.*, **48(8)**, 3342-3347 (2000).
8. Goñi, I., and Valentin-Gamazo, C., *Food Chem.*, **81(4)**, 511-515 (2003).
9. Kim, S.-K. *et al.*, *Starch*, **55(8)**, 366-368 (2003).
10. Ruiz-Ruiz, J. *et al.*, *Food Sci. Technol.*, **41(10)**, 1799-1807 (2008).
11. Polat, U. *et al.*, *Veterinari Medicina*, **54(9)**, 407-411 (2009).
12. Bernardes, T.F. *et al.*, *Grass Forage Sci.*, **67(1)**, 34-42 (2012).
13. Rodrigues, M.A.M. *et al.*, *SpringerPlus*, **3**, 311 (2014).
14. Sandoval-Pereza, M. *et al.*, *J. Food Nutr. Res.*, **53(2)**, 127-136 (2014).
15. Moguel-Ordóñez, Y.B. *et al.*, *Int. Agrophys.*, **29(3)**, 323-331 (2015).
16. Singh, J. *et al.*, *Int. J. Food Prop.*, **19(4)**, 936-943 (2016).
17. Zaccari, F., *et al.*, *Foods*, **6**, 48 (2017).

18. Gangloff, Mary Beth, "Composition and *in vitro* Digestion of Barley, Oat, and Wheat Brans". Oregon State University, M.S. thesis, p. 43 (1992).
19. Kotchan, Andrew Brian, "Evaluation of Yucca Extract, Amino Acid and Jerusalem Artichoke Supplementation in Pig Diets". University of Manitoba, M.Sc. thesis, p. 43 (1998).
20. Gott, Paige Nicole, "Endotoxin Tolerance in Lactating Dairy Cows". The Ohio State University, M.S. thesis, p. 34 (2011).
21. Yoder, Peter Samuel, "Effects of Forage Quality Variation on Lactating Dairy Cows". The Ohio State University, M.S. thesis, pp. 35, 36 (2012).
22. Ribeiro de Souza, Daniela, "Chemical Composition of Select Saskatoon Berry Varieties with an Emphasis on Phenolics". University of Saskatchewan, M.Sc. thesis, pp. 21, 26 (2017).
23. Tebbe, Alexander W., "Interactions of Dietary Magnesium, Monensin and Potassium in Dairy Cattle". The Ohio State University, M.S. thesis, p. 77 (2017).
24. Amundsen, Matthias Rudolf, "Study of carbohydrates in *Euglena gracilis*". University of Helsinki, M.Sc. thesis, p. 29 (2018).
25. Li, Sang, "Bioconversion of Meat and Bone Meal and Starch into Astaxanthin". Kansas State University, M.S. thesis, p. 35 (2019).
26. Xue, Qi, "Influence of waxy and high-amylose starch genes on the composition of barley and the cholesterolemic and glycemic responses in chicks and rats". Montana State University, Ph.D. dissertation, p. 67 (1992).
27. Garcia-Bojalil, Carlos Miguel, "Reproductive, Productive, and Immunological Responses of Holstein Dairy Cows Fed Diets Varying in Concentration and Ruminal Degradability of Protein and Supplemented with Ruminally Inert Fat". University of Florida, Ph.D. dissertation, p. 124 (1993).
28. Chawanje, Chrissie Maureen, "Nutrient and Antinutrient Content of an Underexploited Malawian Water Tuber *Nymphaea Petersiana* (Nyika)". Virginia Polytechnic Institute and State University, Ph.D. dissertation, Appendix D (1998).
29. Hansen, Stephanie Laura, "Nutritional Interrelationships between Iron, Copper and Manganese in Domestic Livestock". North Carolina State University, Ph.D. dissertation, p. 41 (2009).
30. Boas, Marta Sofia Ribeiro Vilas, "Physical and Chemical Features Affecting Starch Digestion in Ruminants". Università Cattolica del Sacro Cuore Piacenza, Ph.D. dissertation, pp. 98, 110 (2009).
31. Ferrari, Viviane Borba, "Levels of concentrate and sources of non-fiber carbohydrates on productive performance and ruminal kinetics of finishing cattle". Universidade de São Paulo, D.Sci. dissertation, p. 35 (2017).
32. Karve, Neeta, "Impact of Germination on Yellow Pea Flour Functionality". Charles Sturt University, Ph.D. dissertation, p. 68 (2018).

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