

Trypsin

(EC 3.4.21.4, Mr ca. 24 000), hydrolyses ester, amide and peptide bonds at the carboxylic groups of arginine, lysine and ornithine. Activities for SERVA trypsin are expressed in international units (IU) with BAEE as substrate.

To compare various definitions of activity, see below:

1) S & T-unit (BAEE-unit):

Schwert & Takenaka devised an assay method for tryptic activity using N α -benzoyl-L-arginine ethyl ester (BAEE) as substrate.

Unit definition: 1 S & T-unit catalyzes a change in absorbance at 253 nm of 0.001 per minute at 25 °C, pH 7.6 in a reaction volume of 3.2 ml (2).

Conversion factor: ca. 270 BAEE units correspond to 1 international unit (U) at 25 °C (3).

References:

1. Schwert, G.W. & Takenaka, Y. (1955) Biochim. Biophys. Acta 16, 570-5
2. Papaioannou, S. & Liener, I.E. (1968) J. Chromatogr. 32, 746-48
3. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, (Bergmeyer, H.U. ed.) 3rd Ed., Vol. 10, 17

2) USP-unit:

Corresponds to the Schwert & Takenaka method but activities are 1/3 of the S & T-units.

Unit definition: 1 USP-unit catalyzes a change in absorbance at 253 nm of 0.003 per minute at 25 °C, pH 7.6 (1). 1 NF-unit = 1 USP-unit

Reference:

1. USP XXI/NF XVI (1984) United States Pharmacopeial Convention, p.1104-5

3) U-unit:

The Enzyme Commission of the International Union of Biochemistry recommends enzyme activity (U) to be expressed in terms of μ moles of substrate transformed per minute at 25 °C and optimum pH.

Unit definition: 1 U catalyzes the hydrolysis of 1 μ mole N α -benzoyl-L-arginine ethyl ester (BAEE) per minute at 25 °C, pH 8.0. The differential molar absorbance of BAEE against N α -benzoyl-L-arginine at 255 nm is 808 (1).

Conversion factor: 1 U = 270 S & T-units or 90 USP-units

Reference:

1. Kezdy, F.J. et al. (1965) Biochemistry 4, 2302-8

4) TAME-unit:

Uses 4-toluenesulfonyl-L-arginine-methyl ester (TAME) as substrate.

Unit definition: 1 U catalyzes the hydrolysis of 1 μ mole TAME per minute at 30 °C, pH 8.1; the released tosyl-L-arginine is determined at 247 nm (1).

Reference:

1. Hummel, B.C.W. (1955) Can. J. Biochem. Physiol. 37, 1393-9

5) DMC-U-unit:

Uses dimethyl casein as substrate; advantageous for expressing activity on a molecular basis with proteases of unknown specificity.

Unit definition: 1 U catalyzes the cleavage of 1 μ mole of peptide bonds from dimethyl casein, at 25 °C, pH 7.0 expressed in terms of the appearance of new terminal amino groups determined with 2,4,6-trinitrobenzenesulfonic acid (1).

References:

1. Lin, Y. et al. (1969) J. Biol. Chem. 244, 789-93

Product Name	Cat.No.
Trypsin from porcine pancreas ca. 60 U/mg 2x cryst. lyophil. salt-free	37291
Trypsin 1:250 from bovine pancreas lyophil.	37289
Trypsin inhibitor from egg white ca. 20 U/mg lyophil.	37310
Trypsin inhibitor from soybean ca. 50 U/mg lyophil.	37328
Trypsin inhibitor from soybean min. 13 000 U/mg lyophil.	37329
Trypsin NB from porcine pancreas	37294
Trypsin NB GMP Grade from porcine pancreas	37296
Trypsin NB Premium Grade, MS approved, from porcine pancreas	37284
Trypsin NB Sequencing Grade, modified, from porcine pancreas	37283

Ver 07/12