Cellulase “Onozuka” RS
from Trichoderma viride

Cat. No. 16420

Product Description:

General
A multi-component enzyme system\(^1\) with high cellulose activity. Contains about three times as high xylanase activity as Cellulase “Onozuka” R-10 (cat. no. 16419).

Cellulase is able to decompose natural (e.g. filter paper) as well as modified cellulosics (e.g. carboxymethyl cellulose). It hydrolyses 1,4-β-D-glucosidic linkages in cellulose, lichenin and cereal β-D-glucans. In nature, cellulose is found in association with other components e.g. hemicellulose, lignin and pectin. SERVA cellulases contain a number of other activities, which assist in breaking down these components and degrading cell walls. α-Amylase hydrolyses 1,4-α-D-glucosidic linkages in polysaccharides containing three or more 1,4-α-linked D-glucose units. Pectinase randomly cleaves 1,4-α-D galactosiduronic linkages in galacturans. Contained are as well hemicellulase and protease activities.

Application
• Isolation of plant protoplasts\(^2\) for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032).

Features
• Lyophilisate activity: ca. 2 U/mg*
• Temperature optimum: 50 – 60 °C
• Optimal pH: 4 - 5 (activity range 3 - 7)
• Extraneous activities: α-amylase, hemicellulase, pectinase, protease

Stability/Storage
Lyophilisate should be stored at a dry place in a tightly closed container at +2 °C to +8 °C. Cellulase solutions are stable at pH 5 – 7 at 4 °C for 24 h. Activity is completely destroyed after 10 – 15 minutes at 80 °C.

Inhibition/Inactivation
Cellulase is inhibited by its reaction products e.g. glucose, cellobiose. Hg\(^{2+}\) inhibits the activity completely, whereas Mn\(^{2+}\), Ag\(^{2+}\), Zn\(^{2+}\) and Cu\(^{2+}\) are only slightly inhibitory.

*Unit definition: 1 U catalyses the liberation of 1 µmol glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose is determined with alkaline copper reagent\(^3\).

\(^1\)Beldman, G. et al. (1985) Eur. J. Biochem. 146, 301 - 308

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