

## Cellulase “Onozuka” R-10 from *Trichoderma viride*

Cat. No. 16419

### Product Description:

<b>General</b>	A multi-component enzyme system <sup>1</sup> with high cellulose activity. Cellulase is able to decompose natural (e.g. filter paper) as well as modified celluloses (e.g. carboxymethyl cellulose). It hydrolyses 1,4- $\beta$ -D-glucosidic linkages in cellulose, lichenin and cereal $\beta$ -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. $\alpha$ -Amylase hydrolyses 1,4- $\alpha$ -D-glucosidic linkages in polysaccharides containing three or more 1,4- $\alpha$ -linked D-glucose units. Pectinase randomly cleaves 1,4- $\alpha$ -D galactosiduronic linkages in galacturans. Contained are as well hemicellulase and protease activities.
<b>Application</b>	<ul style="list-style-type: none"><li>Isolation of plant protoplasts<sup>2</sup> for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032). Recommended quality for ELOS analysis by VDLUFA.</li></ul>
<b>Features</b>	<ul style="list-style-type: none"><li>Lyophilisate activity: ca. 1 U/mg*</li><li>Temperature optimum: 40 – 50 °C</li><li>Optimal pH: 4 - 5 (activity range 3 - 7)</li><li>Extraneous activities: <math>\alpha</math>-amylase ca. 0.8 U/mg, hemicellulase ca. 1 U/mg, pectinase ca. 0.4 U/mg, protease ca. 0.01 DMC-U/mg</li></ul>
<b>Stability and Storage</b>	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.
<b>Inhibition/ Inactivation</b>	Cellulase is inhibited by its reaction products e.g. glucose, cellobiose. $Hg^{2+}$ inhibits the activity completely, whereas $Mn^{+}$ , $Ag^{2+}$ , $Zn^{2+}$ and $Cu^{2+}$ are only slightly inhibitory.

\*Unit definition: 1 U catalyses the liberation of 1  $\mu$ mol glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose is determined with alkaline copper reagent<sup>3</sup>.

<sup>1</sup>Beldman, G. et al. (1985) Eur. J. Biochem. 146, 301 - 308

<sup>2</sup>Potrykus, J. & Shillito, R. D. (1986) Methods Enzymol. 118, 549 – 578

<sup>3</sup>Okada, G. (1988) Methods Enzymol. 160, 259 – 263