

**CERTIFICATE OF ANALYSIS**

Cellulase "Onozuka" R-10 from <i>Trichoderma viride</i> E.C. 3.2.1.4	Cat.No.: 16419 Contr.No.: 150995
---	-------------------------------------

Parameter	Method	Specification	Result
Molecular weight		ca. 52 000	
Appearance		beige lyophilisate	corresponds
Activities (U/mg)	Cellulase	ca. 1	1.0
	Hemicellulase	ca. 1	corresponds
	Protease (DMC)	ca. 0.01	corresponds
	$\alpha$ -Amylase	ca. 0.8	corresponds
	Pectinase	ca. 0.4	corresponds
Minimum shelf life			24.08.2018
Storage (°C)			+2 to +8

**Unit definitions**

**Cellulase**

1 unit is the amount of enzymatic activity which catalyzes the liberation of 1  $\mu$ mol glucose from sodium carboxymethyl cellulose per minute at 40°C, pH 4.5.

**Hemicellulase**

1 unit is the amount of enzymatic activity which liberates 1  $\mu$ mol of reducing groups from beechwood xylan per hour at 37°C, pH 5.5, calculated as xylose.

**Protease**

1 DMC-unit is that amount of enzymatic activity which catalyzes the cleavage of 1  $\mu$ equivalent peptide bond from dimethylcasein per minute at 25°C, pH 7.0, expressed in terms of the appearance of new terminal amino groups.

**$\alpha$ -Amylase**

1 unit is that amount of enzymatic activity which catalyzes the liberation of 1  $\mu$ equivalent of reducing groups from soluble starch (Zulkowsky) per minute at 25°C, pH 6.0, calculated as maltose.

**Pectinase**

1 unit is that amount of enzymatic activity which catalyzes the liberation of 1  $\mu$ mol of reducing groups from pectic acid per minute at 25°C, pH 4.5, calculated as D-galacturonic acid.

<p>We do not guarantee that the product can be used for a special application. This document does not release you from performing the standard control upon receipt of incoming goods.</p>
--

**SERVA Electrophoresis GmbH**  
**Quality Control**

**Printing date:** 26.08.2015

Dipl.-Ing. (FH) Bernhard Göckel

Daniela Lux-Helmstetter

This report has been computer generated and does not contain a signature.