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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

QB 2583-2003

**[QB/T 2583-2003] Cellulases
(English Translation)**

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Foreword

Clause 5.4 of this standard is mandatory, the rest is recommended.

This standard makes reference to the "hygienic indicators" in the enzyme preparations for food industry of the Compendium of Food Additive Specification, Volume I, Joint FAO/WHO Expert Committee on Food Additive (JECFA). They are not equivalent.

Appendix A, Appendix B and Appendix C of this standard are normative annexes, Appendix D is an informative appendix.

This standard was proposed by the China Light Industry Federation.

This standard shall be under the jurisdiction of the National Food Fermentation Standardization Center.

Drafting organizations of this standard. China Food Fermentation Industry Research Institute, Beijing Ningxiner Biotechnology Development Co., Ltd., Novozymes (China) Biotechnology Co., Ltd., Sino-French Joint Venture Tangshan Taiboer Biological Engineering Co., Ltd., Institute of Microbiology of Chinese Academy of Sciences.

1 Scope

This standard specifies the terms and definitions, requirements, test methods, inspection rules and markings, packaging, transportation and storage of cellulase.

This standard is applicable to the acidic (or neutral) cellulase which is prepared by refining and purifying microorganisms and their mutants represented by *Trichoderma* which has been subjected to liquid-submerged fermentation or solid culture. It is mainly used in food, textile, paper and other industries. Food grade cellulase can also be used as feed additives.

2 Normative references

The provisions in following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard; however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 191 Packaging - Pictorial marking for handling of goods

GB/T 4789.2 Microbiological examination of food hygiene-Detection of aerobic bacterial count

GB/T 4789.3 Microbiological examination of food hygiene - Detection of Coliform bacteria

GB/T 4789.4 Microbiological examination of food hygiene - Examination of salmonella

GB/T 5009.11 Determination of total arsenic and abio-arsenic in food

GB/T 5009.12 Determination of lead in foods

GB/T 8451 Method for limit test of heavy metals in food additives

QB/T 1803-1993 General methods of determination for industrial enzymes

QB/T 1804 General principles of inspection and mark, packing, transport,

storage for industrial enzymes

JJF 1070 Rules of metrological inspection for net content of prepackaged

commodity with fixed content

Order No.43 of State Administration of Quality and Technical Supervision

[1995]. Rules for supervision of quantitative packaged commodities

3 Terms, definitions, symbols, abbreviations

The following terms, definitions, symbols, and abbreviations apply to this standard.

3.1

Cellulases

The enzyme that, under the synergistic action of various enzyme components, can degrade the cellulose into cello-oligosaccharide, cellobiose and glucose.

3.2

Filter paper activity (FPA)

1 g of solid enzyme (or 1 mL of liquid enzyme), at (50 ± 0.1) °C and the

specified pH (acid cellulase pH4.8, neutral cellulase pH6.0), is used to hydrolyze the filter paper substrate for 1 h, resulting in the amount of reducing sugar equivalent to 1 mg of glucose, which is one unit of enzyme activity, expressed in u/g (or u/mL).

3.3

Sodium carboxymethylcellulose activity (CMCA)

Reducing sugar method. 1 g of solid enzyme (or 1 mL of liquid enzyme), at (50 ± 0.1) °C and the specified pH (acid cellulase pH4.8, neutral cellulase pH6.0), is used to hydrolyze the sodium carboxymethylcellulose substrate for 1 h, resulting in the amount of reducing sugar equivalent to 1 mg of glucose, which is one unit of enzyme activity, expressed in u/g (or u/mL) and

abbreviated as CMCA-DNS.

Viscosity method. 1 g of solid enzyme (or 1 mL of liquid enzyme), at $(40 \pm 0.1) ^\circ\text{C}$ and the specified pH (acid cellulase pH6.0, neutral cellulase pH7.5), is used to hydrolyze the sodium carboxymethylcellulose substrate, to reduce the viscosity of the substrate, thus obtaining the relative enzyme activity of the cellulase corresponding to the standard, abbreviated as CMCA-VIS.

It is determined in accordance with the method of Appendix C.

6.4 pH

It is determined in accordance with clause 9 of QB/T 1803-1993.

6.5 Heavy metals

It is determined in accordance with GB/T 8451.

6.6 Lead

It is determined in accordance with GB/T 5009.12.

6.7 Arsenic

It is determined in accordance with GB/T 5009.11.

6.8 Total number of colonies

It is determined in accordance with GB/T 4789.2.

6.9 Coliforms

It is determined in accordance with GB/T 4789.3.

6.10 Salmonella

It is determined in accordance with GB/T 4789.4.

7 Inspection rules and marking, packaging,

transportation, storage

7.1 Package, storage and transportation pictorial signs shall be implemented in

accordance with GB/T 191.