ICS 67.060 SLOVENSKÁ TECHNICKÁ NORMA Apríl 2020

STN	**Potraviny** **Stanovenie zearalenonu a trichotecénov vrátane deoxynivalenolu a jeho acetylovaných derivátov (3-acetyl-deoxynivalenol a 15-acetyl-deoxynivalenol), toxínov T-2 a HT-2 nivalenolu v obilninách a výrobkoch z obilnín metódou LC-MS/MS**	**STN** **EN 17280** 56 0536

Foodstuffs - Determination of zearalenone and trichothecenes including deoxynivalenol and its acetylated derivatives (3-acetyl-deoxynivalenol and 15-acetyl-deoxynivalenol), nivalenol T-2 toxin and HT-2 toxin in cereals and cereal products by LC-MS/MS

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/20

Obsahuje: EN 17280:2019

130298

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 17280

October 2019

ICS 67.060

English Version

Foodstuffs - Determination of zearalenone and trichothecenes including deoxynivalenol and its acetylated derivatives (3-acetyl-deoxynivalenol and 15-acetyl-deoxynivalenol), nivalenol T-2 toxin and HT-2 toxin in cereals and cereal products by LC-MS/MS

Produits alimentaires - Dosage de la zéaralénone et des trichothécènes y compris du déoxynivalénol (DON) et ses dérivés acétylés (3-acétyl-DON et 15-acétyl-DON), du nivalénol (NIV) et des toxines T-2 et HT-2 dans les céréales et les produits céréaliers par CL-SM/SM

Lebensmittel - Bestimmung von Zearalenon und Trichothecenen einschließlich Deoxynivalenol und den acetylierten Derivaten (3-Acetyl-Deoxynivalenol und 15-Acetyl-Deoxynivalenol, Nivalenol sowie T-2- und HT-2-Toxin in Getreide und Getreideerzeugnissen mit LC-MS/MS

This European Standard was approved by CEN on 5 August 2019.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 17280:2019 E

Contents

Page

European foreword

This document (EN 17280:2019) has been prepared by Technical Committee CEN/TC 275 “Food analysis - Horizontal methods”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The mycotoxins nivalenol, deoxynivalenol, and its acetyl derivatives (3-acetyl deoxynivalenol, 15-acetyl deoxynivalenol), T-2 toxin and its metabolite HT-2 toxin, and zearalenone are produced by various *Fusarium* species. Cereals like wheat, maize, barley, oats, rye and relevant derived products are most likely to be affected.

WARNING 1 — Suitable precaution and protection measures need to be taken when carrying out working steps with harmful chemicals. The hazardous substances ordinance, Regulation (EC) No 1907/2006 [3], should be taken into account as well as appropriate national statements.

WARNING 2 — The use of this document can involve hazardous materials, operations and equipment. This document does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

WARNING 3 — *Fusarium* toxins (zearalenone, deoxynivalenol, T-2 and HT-2 toxins) have been implicated as the causative agents in a variety of animal diseases, such as pulmonary oedema, infertility, diarrhoea, vomiting, anorexia, leukopenia, immunosuppression, skin and gastrointestinal irritation, hemorraging, etc., and have been associated to some human diseases. The IARC has defined zearalenone, deoxynivalenol and T-2 as not classifiable as to their carcinogenicity to humans (Group 3) [4].

1 Scope

This document specifies a procedure for the determination of nivalenol (NIV), deoxynivalenol (DON) and its acetyl derivatives (3-acetyl-DON and 15-acetyl-DON), HT-2 and T-2 toxins (HT-2 and T-2) and zearalenone (ZEN) in cereals and cereal products by high performance liquid chromatography (HPLC) coupled with tandem mass spectrometry (MS/MS) after clean-up by solid phase extraction (SPE).

The method has been validated with samples of wheat, wheat flour, and wheat crackers. The wheat and the wheat flour were prepared from a mixture of wheat and fungi infected wheat kernels. The wheat crackers were baked from wheat flour and water spiked with the target mycotoxins.

Validation levels for NIV ranged from 27,7 µg/kg to 378 µg/kg.

Validation levels for DON ranged from 234 µg/kg to 2420 µg/kg.

Validation levels for 3-acetyl-DON ranged from 18,5 µg/kg to 137 µg/kg.

Validation levels for 15-acetyl-DON ranged from 11,4 µg/kg to 142 µg/kg.

Validation levels for HT-2 ranged from 6,6 µg/kg to 134 µg/kg.

Validation levels for T-2 ranged from 2,1 µg/kg to 37,6 µg/kg.

Validation levels for ZEN ranged from 31,6 µg/kg to 230 µg/kg.

Laboratory experiences have shown that this method is also applicable to barley and oat flour, and rye based crackers [5], however, this has not been validated in a collaborative study.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*