

STN P	Organické, organicko-minerálne a anorganické hnojivá Detekcia <i>Escherichia coli</i>	STN P CEN/TS 17781 65 5082
------------------	--	--

Organic, organo-mineral and inorganic fertilizers - Detection of Escherichia coli

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. 07/22

Táto predbežná slovenská technická norma je určená na overenie. Prípadné pripomienky pošlite do apríla 2024 Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

Obsahuje: CEN/TS 17781:2022

135075

TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN/TS 17781

April 2022

ICS 65.080

English Version

**Organic, organo-mineral and inorganic fertilizers -
Detection of *Escherichia coli***

Engrais organiques, organo-minéraux et inorganiques -
Recherche des *Escherichia coli*

Organische, organisch-mineralische und anorganische
Düngemittel - Nachweis von *Escherichia coli*

This Technical Specification (CEN/TS) was approved by CEN on 13 March 2022 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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

CEN/TS 17781:2022 (E)

Contents	Page
European foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Principle	6
5 Diluents, culture media and reagents	7
5.1 General	7
5.2 Diluents	7
5.3 Culture media	7
6 Equipment and consumables	8
7 Sampling	8
8 Preparation of test sample	9
9 Procedure (see Figure A.1 in Annex A (normative))	9
9.1 Preparation of the initial suspension and decimal dilutions	9
9.2 Inoculation and incubation	9
9.3 Enumeration of colonies	10
9.4 Confirmation (optional)	10
10 Expression of results	11
11 Method validation	12
12 Test report	12
Annex A (normative) Diagram of the procedure	13
Annex B (normative) Composition and preparation of culture media and reagents	14
Bibliography	18

European foreword

This document (CEN/TS 17781:2022) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

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 Standardization Request given to CEN by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: 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.

CEN/TS 17781:2022 (E)

Introduction

This document describes a method for the detection and enumeration of *Escherichia coli* in fertilizers of the following Product Function Categories (PFCs) of EU fertilizing products, as described in the Regulation (EU) 2019/1009 [1]:

- PFC 1(A): Organic fertilizer;
- PFC 1(B): Organo-mineral fertilizer;
- PFC 1(C): Inorganic fertilizer, which contains more than 1 % by mass of organic carbon, other than organic carbon from chelating or complexing agents, nitrification inhibitors, denitrification inhibitors or urease inhibitors, coating agents, urea or calcium cyanamide. The present method was validated on products known as present on the market in April 2021 and conform to Regulation (EU) 2019/1009 [1] that are inorganic fertilizers with more than 1 % of organic carbon such as struvite with low level of organic matter. In case that other products would be developed having other physical and chemical characteristics, it might become necessary to develop different methods to correctly account for pathogenic microorganisms they might contain.

This methodology has been developed to detect and enumerate *Escherichia coli* in organic, organo-mineral and inorganic fertilizers in order to be able to control certain hygienic requirements in the Regulation (EU) 2019/1009 [1].

Escherichia coli is a Gram negative bacterium with a faecal origin. Consequently, it can be used as an indicator of faecal contamination. It can also be used to monitor the effectiveness of pasteurization or disinfection treatments but it is comparatively sensitive (to heat, high pH) and therefore cannot reflect the behaviour of all pathogens in fertilizers.

Because of the large variety of fertilizers, this method might not be appropriate in every detail for certain products. In this case, different methods which are specific to these products may be used if absolutely necessary for justified technical reasons. Nevertheless, every attempt should be made to apply this method as far as possible.

Mineral components in fertilizers can have a negative impact on the survivability of microorganisms when they go into solution. In addition to an unfavourable shift in the pH value, the products can have a strong osmotic effect or be toxic to cells themselves (e.g. copper). Therefore, it can be necessary to test the inhibitory effect of the fertilizers to be investigated in a pre-test.

1 Scope

This document is applicable to fertilizing products, which are classified as PFC 1(A) and PFC 1(B) or the PFC 1(A) and PFC 1(B) component in PFC 7 of Regulation (EU) 2019/1009 [1]. However, the present method was not validated for blends.

This document specifies a colony-count technique at 44 °C on a solid medium containing a chromogenic ingredient for the detection of the enzyme β -glucuronidase. The method is based on ISO 16649-2 [4].

Strains of *Escherichia coli* which do not grow at 44 °C and, in particular, those that are β -glucuronidase negative, such as *Escherichia coli* O157, will not be detected. Detected microorganisms are presumptively determined β -glucuronidase-positive *Escherichia coli*, since some Enterobacteriaceae, in particular Shigella and Salmonella, can also show β -glucuronidase activity at 44 °C.

2 Normative references

There are no normative references in this document.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN