

|            |   |                                       |
|------------|---|---------------------------------------|
| <b>STN</b> | <b>Vplyv organických materiálov na pitnú vodu.<br/>Stanovenie pachu a posudzovanie chuti vody v<br/>potrubných systémoch.</b> | <b>STN<br/>EN 1420</b><br><br>75 8700 |
|------------|---|---------------------------------------|

Influence of organic materials on water intended for human consumption - Determination of odour and flavour assessment of water in piping systems

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. 06/16

(Rozpracovanie prekladom)

Obsahuje: EN 1420:2016

Oznámením tejto normy sa ruší  
STN EN 1420-1 (75 8700) z decembra 2001

**122941**

EUROPEAN STANDARD

**EN 1420**

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2016

ICS 13.060.20; 67.250

Supersedes EN 1420-1:1999

English Version

## Influence of organic materials on water intended for human consumption - Determination of odour and flavour assessment of water in piping systems

Influence des matériaux organiques sur l'eau destinée à la consommation humaine - Détermination de l'odeur et de la saveur de l'eau dans les réseaux de conduites

Einfluss von organischen Werkstoffen auf Wasser für den menschlichen Gebrauch - Bestimmung des Geruchs und Geschmacks des Wassers in Rohrleitungssystemen

This European Standard was approved by CEN on 27 November 2015.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, 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: Avenue Marnix 17, B-1000 Brussels**

| <b>Contents</b>  | <b>Page</b> |
|--|-------------|
| European foreword.....   | 4           |
| Introduction .....   | 5           |
| 1 Scope.....   | 6           |
| 2 Normative references.....  | 6           |
| 3 Terms and definitions .....  | 6           |
| 4 Principle .....  | 8           |
| 5 Reagents .....   | 8           |
| 6 Apparatus.....   | 9           |
| 7 Sampling, transport, storage, and preparation of test pieces.....        | 10          |
| 7.1 General.....   | 10          |
| 7.2 Site-applied products.....   | 10          |
| 7.3 Surface-area-to-volume ratio ( <i>S/V</i> ) .....                      | 10          |
| 7.3.1 General.....   | 10          |
| 7.3.2 Pipes.....   | 11          |
| 7.3.3 Fittings, ancillaries and membranes.....                             | 11          |
| 7.3.4 Site-applied products.....   | 11          |
| 8 Preparation of reagents and apparatus.....                               | 11          |
| 8.1 Test water .....   | 11          |
| 8.2 Test water with chlorine content .....                                 | 11          |
| 8.3 Cleaning of glassware .....  | 12          |
| 9 Pretreatment of test pieces .....  | 12          |
| 9.1 General.....   | 12          |
| 9.2 Test pieces to be tested at (23 ± 2) °C (Cold water test).....         | 12          |
| 9.2.1 Flushing .....   | 12          |
| 9.2.2 Stagnation with test water.....                                      | 12          |
| 9.3 Test pieces to be tested at elevated temperature (60 °C or 85 °C)..... | 13          |
| 9.3.1 Flushing .....   | 13          |
| 9.3.2 Stagnation with test water at elevated temperature .....             | 13          |
| 9.4 Prewashing.....  | 13          |
| 10 Test procedure .....  | 13          |
| 10.1 General.....  | 13          |
| 10.2 Cold water test procedure.....  | 13          |
| 10.3 Elevated temperature test procedure .....                             | 14          |
| 11 Determination of TON and TFN.....                                       | 14          |
| 12 Expression of results.....  | 15          |
| 13 Test report.....  | 15          |
| 13.1 General information.....  | 15          |
| 13.2 Information on the product/material .....                             | 15          |
| 13.3 Information for site-applied products .....                           | 16          |
| 13.4 Information on the test procedure .....                               | 16          |
| 13.5 Test results .....  | 16          |

|  |           |
|--|-----------|
| <b>Annex A (informative) Schematic presentation of test method.....</b>                  | <b>18</b> |
| <b>Annex B (normative) Sequence of additional migration periods.....</b>                 | <b>20</b> |
| <b>Annex C (normative) Panel qualification for odour and flavour testing .....</b>       | <b>22</b> |
| <b>C.1 General .....</b>   | <b>22</b> |
| <b>C.2 Individual TON determination.....</b>   | <b>22</b> |
| <b>C.3 Ranking test.....</b>   | <b>23</b> |
| <b>C.4 Long term monitoring.....</b>   | <b>23</b> |
| <b>Annex D (informative) Preparation of dilution series for panel qualification.....</b> | <b>24</b> |
| <b>D.1 Series of successive MtBE dilutions .....</b>                                     | <b>24</b> |
| <b>D.1.1 MtBE spike solution .....</b>   | <b>24</b> |
| <b>D.1.2 Series of successive dilutions.....</b>   | <b>24</b> |
| <b>D.2 Series of successive 1-butanol concentrations .....</b>                           | <b>24</b> |
| <b>D.2.1 1-butanol spike solution .....</b>  | <b>24</b> |
| <b>D.2.2 Series of successive dilutions.....</b>   | <b>25</b> |
| <b>Bibliography .....</b>  | <b>26</b> |

## European foreword

This document (EN 1420:2016) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

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 July 2016, and conflicting national standards shall be withdrawn at the latest by July 2016.

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

This document supersedes EN 1420-1:1999.

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

With regard to the former edition EN 1420-1:1999, the following changes were made:

- the test method for TON /TFN according to EN 1622 has been specified,
- a procedure for the panel qualification has been introduced,
- the preparation of the migration waters has been specified and is now in accordance with EN 12873-1,
- the scope of the standard has been extended: all organic products in contact with drinking water (including coatings and side applied products) can be tested according to this standard.

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

## **Introduction**

In respect of potential adverse effects on the quality of the water intended for human consumption, arising from contact with materials used for conveying and distribution, it is recalled to mind that, national regulations remain in force.

## 1 Scope

This European Standard specifies a procedure for obtaining a migration water to determine odour and flavour for products made from organic materials intended to come in contact with water for human consumption (drinking water) and used in piping systems. Such products include pipes, fittings, ancillaries and coatings.

This standard is applicable to products to be used under various conditions for the transport, storage and distribution of water intended for human consumption and raw water used for the manufacture of water intended for human consumption.

This standard specifies a test method comprising of a set of procedures. The use may be dependent on the relevant national regulations and/or the system or product standards.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1622:2006, *Water quality — Determination of the threshold odour number (TON) and threshold flavour number (TFN)*

EN 12873-1:2014, *Influence of materials on water intended for human consumption — Influence due to migration — Part 1: Test method for factory-made products made from or incorporating organic or glassy (porcelain/vitreous enamel) materials*

EN 12873-2, *Influence of materials on water intended for human consumption — Influence due to migration — Part 2: Test method for non-metallic and non-cementitious site-applied materials*

EN ISO 7393-2, *Water quality — Determination of free chlorine and total chlorine — Part 2: Colorimetric method using N, N-diethyl-1, 4-phenylenediamine, for routine control purposes (ISO 7393-2)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**