

Water analysis — Determination of the threshold odour number (TON) and threshold flavour number (TFN)

The European Standard EN 1622 : 1997 has the status of a
British Standard

ICS 13.060.01

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The UK participation in its preparation was entrusted by Technical Committee EH/3, Water quality, to Subcommittee EH/3/2, Physical, chemical and biochemical methods, which has the responsibility to:

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Further information

Users of this standard are informed that the UK submitted a vote of disapproval on the final voting stage of the draft EN for the following reasons:

While most of the standard is presented in a satisfactory manner, the main procedural clause, clause **10**, is unclear in structure, confusing and almost impossible to follow to a user who is not already familiar with the test. This is not helped by the multiplicity of methods presented in the procedural clause thereby making any truly international comparison virtually impossible.

Cross-references

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 12, an inside back cover and a back cover.

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English version

Water analysis — Determination of the threshold odour number (TON) and threshold flavour number (TFN)

Analyse de l'eau — Détermination du seuil d'odeur (TON) et du seuil de flaveur (TFN)

Wasserbeschaffenheit — Bestimmung des Geruchsschwellenwerts (TON) und des Geschmacksschwellenwerts (TFN)

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 230, Water analysis, 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of an identical text or by endorsement, at the latest by April 1998, and conflicting national standards shall be withdrawn at the latest by April 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Annex A is normative. Annexes B, C, D and E are informative.

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Introduction

This European Standard gives methods for the determination of the threshold odour number (TON) and the threshold flavour number (TFN).

The methods described in this European Standard are based on the standard methods for sensory analysis. However, some differences are noted, as compared with those methods, due to water specificity.

This European Standard is primarily intended to give a quantitative measure of odour and flavour of a water sample at a temperature of 25 °C.

NOTE. The method can be used to determine the odour and flavour of a water sample at other temperatures but there will be no correlation between results obtained at different temperatures.

1 Scope

This European Standard specifies methods for determining the TON and TFN of waters. It is essential that the safety remarks in clause 5 are taken into account.

Two methods are described.

- A short method applicable when either a sample has no odour and flavour or when the odour and flavour are to be compared with a specified threshold number.
- A full method applicable when the threshold number for the sample is to be determined.

Both methods are applicable for quantifying the odour and flavour of drinking water and/or migration waters from materials in contact with waters.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 3591 : 1977	<i>Sensory analysis — Apparatus — Wine-tasting glass</i>
ISO 5492 : 1992	<i>Sensory analysis — Vocabulary</i>
ISO 8589 : 1988	<i>Sensory Analysis — General guidance for the design of test rooms</i>
ISO 7393-2 : 1985	<i>Water quality — Determination of free chlorine and total chlorine — Part 2: Colorimetric method using N,N-diethyl-1,4-phenylenediamine, for routine control purposes</i>

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 odour

Organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances [ISO 5492 : 1992].

3.2 flavour

Complex combination of the olfactory, gustatory and trigeminal sensations perceived during tasting. The flavour may be influenced by tactile, thermal, painful and/or kinaesthetic effects [ISO 5492 : 1992].

3.3 threshold odour number (TON)

Dilution ratio beyond which the diluted sample does not have any perceptible odour.

$$TON = \frac{A + B}{A}$$

where:

- A* is the volume of sample;
- B* is the volume of reference water.

3.4 threshold flavour number (TFN)

Dilution ratio beyond which the diluted sample does not have any perceptible flavour.

$$TFN = \frac{A + B}{A}$$

where:

- A* is the volume of sample;
- B* is the volume of reference water.

3.5 reference water

The water described as without any odour and flavour.

NOTE. For guidance on reference waters, see annex B.

3.6 test panel

A group of selected assessors used to evaluate flavour and odour.

NOTE. For guidance on the selection of the test panel, see annexes C and E.

3.7 selected assessor

Assessor chosen for his/her ability to perform a sensory test [ISO 5492 : 1992].

4 Principle

The odour and flavour of a water sample are assessed by a test panel by comparing that sample and/or dilutions of that sample with a reference water.