Irish Standard
I.S. EN 16841-2:2016

Ambient air - Determination of odour in ambient air by using field inspection - Part 2: Plume method

I.S. EN 16841-2:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:	*Published:*
EN 16841-2:2016	2016-11-23

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2016-12-12	13.040.20
	NOTE: If blank see CEN/CENELEC cover page

NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 16841-2:2016 is the adopted Irish version of the European Document EN 16841-2:2016, Ambient air - Determination of odour in ambient air by using field inspection - Part 2: Plume method

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16841-2

November 2016

ICS 13.040.20

English Version

Ambient air - Determination of odour in ambient air by using field inspection - Part 2: Plume method

Air ambiant - Détermination de la présence d'odeurs par mesures de terrain - Partie 2 : Méthode du panache

Außenluft - Bestimmung von Geruchsstoffimmissionen durch Begehungen - Teil 2: Fahnenmessung

This European Standard was approved by CEN on 10 September 2016.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword

This document (EN 16841-2:2016) has been prepared by Technical Committee CEN/TC 264 “Air quality”, 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 May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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

EN 16841, *Ambient air - Determination of odour in ambient air by using field inspection* consists of the following parts:

— *Part 1: Grid method*

— *Part 2: Plume method*

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, 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

Part 1 (grid method) and Part 2 (plume method) of this European Standard describe methods for direct assessment of odours in ambient air.

This European Standard supplements the dynamic olfactometry method described in EN 13725 which is generally only suitable for measurement of odour emissions 'at source'. As the practical lower detection limit is typically ≥ 10 ouE/m^3, EN 13725 cannot be applied to directly determine odour exposure in the field (i.e. measure faint odours at the concentration where they can just be recognized).

The methods for measuring odour presented in this European Standard make direct use of odour perception, the effect of odorants on the human sense of smell. The standard involves the use of qualified human panel members in the field to directly assess the presence of recognizable odours in ambient air, and provide data that can be used to characterize odour exposure in a defined assessment area. The standard presents two key approaches as summarized as follows:

— Part 1 describes a grid method which uses direct assessment of ambient air by panel members to characterize odour exposure in a defined assessment area.

— Part 2 (presented in this document) describes a plume method to characterize the presence of odour by determining the extent of the downwind odour plume of a source.

Although the ultimate application of this method is in monitoring the risk of exposure to odours and the resulting odour annoyance, there is no direct relation between the presence of recognizable odours and the occurrence of odour annoyance. The process leading to odour annoyance being experienced by an individual or a community is highly complex. Additional investigations are necessary to establish a link between odour exposure and the risk of odour annoyance, which is profoundly influenced by odour exposure frequency, by the type and hedonic tone of the odour perceived, and by the characteristics of those exposed to the odour (the receptor). The relationship between odour exposure and annoyance is not within the scope of this European Standard.

The sensory methods described are only suitable for the assessment of odour in ambient air. They are not suitable for the assessment of substances that cannot be detected by sensory methods, in particular when these substances may cause health effects not directly related to their perceived smell.

1 Scope

This part of the European Standard describes the plume method for determining the extent of recognizable odours from a specific source using direct observation in the field by human panel members under specific meteorological conditions.

The plume method involves the determination of the presence or absence (YES/NO) of recognizable odours in and around the plume originating from a specific odorant emission source, for a specific emission situation and under specific meteorological conditions (specific wind direction, wind speed and boundary layer turbulence). The unit of measurement is the presence or absence of recognizable odours at a particular location downwind of a source. The extent of the plume is assessed as the transition of absence to presence of recognizable odour.

The primary application of this standard is to provide a common basis for the determination of the odour plume extent in the member states of the European Union.

The results are typically used to determine a plausible extent of potential exposure to recognizable odours, or to estimate the total emission rate based on the plume extent, using reverse dispersion modelling.

The field of application of this European Standard includes the determination of the extent of the recognizable odour plume downwind from a source, under specific meteorological conditions (e.g. wind direction, wind speed, turbulence, etc. (see 7.3.2).

This European Standard does not include:

— the measurement of intensity of ambient odours;

— the measurement of hedonic tone of ambient odours;

— the measurement of the odour exposure in ambient air over a longer time period in an assessment area;

— the calculation of estimated source emission rate from plume assessment using reverse dispersion modelling.

An overview of the interaction between existing odour exposure assessment methods is given in Annex A including grid method (Part 1), plume method (Part 2) and olfactometry according EN 13725.

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 13725:2003, *Air quality - Determination of odour concentration by dynamic olfactometry*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
sensory adaptation
temporary modification of the sensitivity of a sense organ due to continued and/or repeated stimulation

Note 1 to entry Adaptation can also occur as a result of a gradually increasing stimulation.

[SOURCE: ISO 5492:2008, 2.6, modified – Added Note 1 to entry.]