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Stationary source emissions — Determination of odour concentration by dynamic olfactometry and odour emission rate

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Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EV-007, Methods for Examination of Air, to supersede AS/NZS 4323.3:2001, *Stationary source emissions, Part 3: Determination of odour concentration by dynamic olfactometry.*

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this document as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this document is to specify an objective method for the determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors. The document also specifies a method for the determination of the odour emission rate from stationary sources.

This document is identical with, and has been reproduced from, EN 13725:2022, *Stationary source emissions — Determination of odour concentration by dynamic olfactometry and odour emission rate*.

As this document has been reproduced from an International document, a full point substitutes for a comma when referring to a decimal marker.

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NOTES

Contents

Page

European foreword 4

1 Scope 5

2 Normative references 6

3 Terms and definitions 6
3.1 Terms and definitions for olfactometry 7
3.2 Terms and definitions for sampling 13
3.3 Terms and definitions for metrology and statistics 16

4 Symbols and abbreviated terms 22

5 Principle of method 24
5.1 Odour measurement: odorant gas sampling and odour analysis 24
5.2 Odorant gas sampling 24
5.3 Determination of odour concentration 25

6 Apparatus and materials 28
6.1 General properties of materials 28
6.2 Sampling equipment 28
6.3 Sample container 29
6.4 Gases 30
6.5 Dilution apparatus 31
6.6 Environment for observations by assessors 33
6.7 Panel 34

7 Performance characteristics and criteria 36
7.1 General 36
7.2 Accuracy - statistical model 37
7.3 Overall sensory quality requirements 37
7.4 Quality requirements for dilution apparatus 40

8 Measurement objective and measurement plan 44
8.1 General 44
8.2 Preliminary investigation 44
8.3 Measurement plan 44

9 Measurement procedure 45
9.1 Sampling 45
9.2 Sampling of a point source 50
9.3 Sampling of area sources 50
9.4 Olfactometric analysis 55
9.5 Occupational safety for sampling personnel, assessors and olfactometry operators 57
9.6 Validation and calculation of results 60

10 Quality assurance and quality control procedures 62
10.1 Field blank 62
10.2 Measurement uncertainty 63
10.3 Determination of the limit of detection (LoD) and the limit of quantification (LoQ) 69

11 Measurement records and report 71
11.1 General 71
11.2 Records and reporting for emission sampling 71

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11.3 Records and reporting for odour concentration measurement 72

Annex A (informative) Physiological principles 74

Annex B (informative) Example of calculation of instrumental accuracy and instability 78

Annex C (informative) Example of calculation of odour measurements within one laboratory.. 81

Annex D (informative) Example of calculations for panel selection..... 83

Annex E (informative) Example of the calculation of the odour concentration from a set of panel member responses 85

Annex F (informative) Example of the calculation used to determine the number of odour concentration measurements required to achieve a defined precision 89

Annex G (informative) Example of the calculation used to determine the number of odour concentration measurements required to determine a difference between two means .. 91

Annex H (informative) Example of the calculation of the odour flow rate (standard conditions) for a wet emission 94

Annex I (informative) Example of the calculation of an SROM value for a new defined odorant from an EROM comparison 95

Annex J (informative) Example of the calculation of measurement uncertainty.....105

Annex K (informative) Dynamic dilution apparatus for sampling.....113

Annex L (informative) Considerations for the interpretation of the odour concentration concept for air quality management 116

Annex M (informative) Sampling of passive area sources.....117

Annex N (informative) Significant technical changes 119

Bibliography.....123

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European foreword

This document (EN 13725:2022) 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 August 2022, and conflicting national standards shall be withdrawn at the latest by August 2022.

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 supersedes EN 13725:2003. The methods defined in the first edition and its associated quality criteria have been validated in numerous proficiency tests.

The main changes in this revision relative to the first edition EN 13725:2003 are listed in informative Annex N.

Annexes A, B, C, D, E, F, G, H, I, J, K, L, M and N are all informative.

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 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.

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1 Scope

This document specifies an objective method for the determination of the odour concentration of a gaseous sample using dynamic olfactometry with human assessors. The document also specifies a method for the determination of the odour emission rate from stationary sources, in particular:

a) point sources (conveyed or ducted emissions);

b) active area sources (e.g. biofilters).

The primary application of this document is to provide a common basis for evaluation of odour emissions.

When this document is used for the determination of the odour concentration or the odour emission rate of stationary source emissions, the other relevant European Standards concerning stationary source emissions apply, in particular EN 15259 and EN ISO 16911-1, especially when measurements have to comply with the relevant European Directives concerning industrial air emissions.

Even so, the analysis/quantification step of the measurement method described in this document (i.e. the determination of the odour concentration of an odorous gas sample, without respect to the origin of the sample itself) may be fully applied in many cases not related with industrial emission sources (e.g. the measurement of the mass concentration at the detection threshold of odorant substances, the determination of effectiveness of deodorising systems for indoor air). In those latter cases, the requirements in this document concerning the measurement planning and the sampling of stationary sources may be ignored or adapted.

This document is applicable to the measurement of odour concentration of odorous gas, mixtures of odorants of defined composition and undefined mixtures of odorants in air or nitrogen, using dynamic olfactometry with a panel of human assessors being the sensor. The unit of measurement is the European odour unit per cubic metre: ou_E/m^3. The odour concentration is measured by determining the dilution factor required to reach the detection threshold. The odour concentration at the detection threshold is by definition 1 ou_E/m^3. The odour concentration is then expressed in terms of multiples of the detection threshold. The range of measurement is typically from 10^1 ou_E/m^3 to 10^7 ou_E/m^3 (including pre-dilution).

The field of application of this document includes:

1) the measurement of the mass concentration at the detection threshold of odorants in g/m^3;

2) the determination of the SROM value of secondary reference odorant gas, in mol;

3) the measurement of the odour concentration of mixtures of odorants in ou_E/m^3;

4) the measurement of the odour emission rate from point sources and active area sources, including pre-dilution during sampling;

5) the sampling of odorous gases from emissions of high humidity and temperature (up to 200 °C);

6) the determination of effectiveness of mitigation techniques used to reduce odour emissions.

   The determination of odour emissions requires measurement of gas velocity to determine the volume flow rate.

The field of application of this document does not include:

i. the measurement of odours potentially released by particles of odorous solids or droplets of odorous fluids suspended in emissions;

ii. the measuring strategy to be applied in case of variable emission rates;

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