



DPC: 23 / 30447561 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 05 July 2023

Origin: International

Latest date for receipt of comments: 23 August 2023

Project No. 2021/03169

Responsible committee: CPL/59 Performance of household electrical appliances

Interested committees:

Title: Draft BS EN 63086-2-2 Ed.1.0. Household and similar electrical air cleaning appliances - Method for measuring performance

Part 2-2: Particular requirements for determination of chemical gas reduction

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

**WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD.
THIS DRAFT IS NOT CURRENT BEYOND 23 August 2023**

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <http://standardsdevelopment.bsigroup.com>

Responsible Committee Secretary: Ms Nicola Young (BSI)

Direct tel:

E-mail: nicola.young@bsigroup.com

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

PROJECT NUMBER:

IEC 63086-2-2 ED1

DATE OF CIRCULATION:

2023-06-30

CLOSING DATE FOR COMMENTS:

2023-09-22

SUPERSEDES DOCUMENTS:

59N/3/NP, 59N/10A/RVN**IEC SC 59N : ELECTRICAL AIR CLEANERS FOR HOUSEHOLD AND SIMILAR PURPOSES**

SECRETARIAT:

United States of America

SECRETARY:

Mr Wayne Morris

OF INTEREST TO THE FOLLOWING COMMITTEES:

TC 59

PROPOSED HORIZONTAL STANDARD:

☒

Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC☒ ENVIRONMENT☐ QUALITY ASSURANCE☐ SAFETY

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Household and similar electrical air cleaning appliances - Method for measuring performance - Part 2-2: Particular requirements for determination of gas-phase pollutant reduction

NOTE FROM TC/SC OFFICERS:

This CD was approved to open comments by an Administrative Meeting of IEC SC59N, JWG 2 on 8 June 2023.

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	4
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
3.1 gas-phase pollutant	6
3.2 test gases	6
3.3 clean air delivery rate, CADR.....	6
3.4 natural decay rate	6
3.5 total decay rate.....	6
3.6 background concentration	6
3.7 initial concentration.....	6
4 Test gases and initial concentrations for testing	6
4.1 General.....	6
4.2 Representative test gases	7
4.2.1 Formaldehyde.....	6
4.2.2 Toluene	6
4.2.3 n-Heptane	7
4.2.4 d-Limonene	7
4.2.5 Ammonia	8
4.2.6 Nitrogen dioxide	8
4.3 Optional gases.....	8
5 Measurement method for chemical gas concentration.....	8
5.1 General.....	8
5.2 Measurement and analysis method for formaldehyde	8
5.3 Measurement and analysis method for toluene, n-heptane, d-limonene and α-pinene	8
5.4 Measurement and analysis method for ammonia.....	8
5.5 Measurement and analysis method for nitrogen dioxide	8
6 Emission method of chemical gases	8
6.1 General.....	8
6.1.1 Gas cylinder method.....	9
6.1.2 Heating vaporization method	9
7 Test chamber	9
8 Test procedures in maximum performance operation mode	9
8.1 General.....	9
8.2 Natural decay test.....	9
8.2.1 General	9
8.2.2 Setting the sampling point	9
8.2.3 Cleaning of the test chamber	10
8.2.4 Test chamber conditions.....	10
8.2.5 Chemical gas emission	10
8.2.6 Measurement of the initial concentration.....	10
8.2.7 Measurement of the natural decay rate.....	10
8.2.8 Calculation of the natural decay rate.....	11

8.3	Total decay test	11
8.3.1	Pre-treatment and Placement of the DUT	11
8.3.2	Setting the sampling point	11
8.3.3	Cleaning of the test chamber	11
8.3.4	Test chamber conditions	11
8.3.5	Chemical gas emission	11
8.3.6	Measurement of the initial concentration	11
8.3.7	Operation of the DUT	11
8.3.8	Measurement of the total decay rate	11
8.3.9	Calculation of the natural decay rate	12
8.4	Calculation of the chemical clean air delivery rate	12
9	Calculation Procedures	12
9.1	Criteria for the acceptance of data points	12
9.1.1	Outliers from the regression line	12
9.1.2	Concentration below 1 % of the initial concentration	12
9.2	Calculation of decay constants	12
9.3	Calculation of the clean air delivery rate	13
10	Test report	14
10.1	General	14
Annex A (informative)	Chemical gases used in this test procedure	16
A.1	Representative test gases	15
A.2	Optional gases	16
Annex B (normative)	Calculation of the 99% prediction interval of the regression line	18
Annex C (informative)	Test report information	20
C.1	General	20
C.2	General data	20
C.3	Description of the DUT	20
C.4	Test chamber	20
C.5	Emission method of chemical gases	20
C.6	Chemical gas measurement instrumentation	21
C.7	Test conditions	21
C.8	Test execution	21
C.9	Results	21
Bibliography		24
Table 1 – Representative gases		7
Table 2 – Target of the background concentration of chemical gases		10

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL AIR CLEANING APPLIANCES —
METHODS FOR MEASURING THE PERFORMANCE**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63086 has been prepared by subcommittee SC59N: Electrical air cleaners for household and similar purposes of IEC technical committee TC59: Performance of household and similar electrical appliances. It is an international standard.

INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent. IEC takes no position concerning the evidence, validity, and scope of this patent right.

The holder of this patent right has assured IEC that s/he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from the patent database available at patents.iec.ch/.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those in the patent database. IEC shall not be held responsible for identifying any or all such patent rights.

HOUSEHOLD AND SIMILAR ELECTRICAL AIR CLEANING APPLIANCES - METHODS FOR MEASURING THE PERFORMANCE

Part 2-2: Particular Requirements for Determination of Gas-phase Pollutant Reduction

1 Scope

This part of IEC 63086 specifies test methods for measuring the performance of electrically powered household and similar air cleaners intended for the reduction of gas-phase pollutants.

In this document, the performance for reduction of gas-phase pollutants is evaluated by the measurement of concentration but not by the sensory olfactory test. The performance evaluated by this test method is not to certify the reduction of odour intensity or the improvement of acceptability.

In this document, the performance test methods to measure by-products of either the interaction between chemicals or between the air cleaner and the chemicals tested in this document are not suggested. The formation of by-products is an important subject. The subject of measuring by-products and chemicals is under study and IEC JWG 2 will address this in future documents.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16000-3, Indoor air - Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air - Active sampling method

ISO 16000-6, Indoor air - Part 6: Determination of organic compounds (VVOC, VOC, SVOC) in indoor and test chamber air by active sampling on sorbent tubes, thermal desorption and gas chromatography using MS or MS FID

ISO 16000-9, Indoor air - Part 9: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test chamber method

IEC 63086-1, Household and similar electrical air cleaning appliances - Methods for measuring the performance - Part 1: General requirements

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>