

This is a preview of "ISO 16000-28:2020". [Click here to purchase the full version from the ANSI store.](#)

Second edition
2020-11

Indoor air —

Part 28:

Determination of odour emissions from building products using test chambers

Air intérieur —

*Partie 28: Détermination des émissions d'odeurs des produits de
construction au moyen de chambres d'essai*



Reference number
ISO 16000-28:2020(E)

© ISO 2020



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

This is a preview of "ISO 16000-28:2020". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	3
5 Principle	3
6 Test facilities	3
6.1 General.....	3
6.2 Test room and recovery room.....	4
6.3 Odour sampling and assessment devices.....	4
6.3.1 General.....	4
6.3.2 Funnel.....	4
6.3.3 Sample containers.....	5
6.3.4 Sample presentation system.....	5
6.4 Comparative scale.....	5
6.4.1 General.....	5
6.4.2 Set up of the comparative scale.....	6
6.4.3 Check-up of the comparative scale.....	7
6.4.4 Measurement of acetone concentration and calibration of the measurement device.....	7
7 Test requirements	8
7.1 General.....	8
7.2 Emission test chamber and test room background odour.....	8
7.2.1 Background odour.....	8
7.2.2 Test room conditions.....	8
7.2.3 Ventilation of the test room.....	8
7.2.4 Recovery room conditions.....	9
8 Odour testing from emission test chambers	9
8.1 General.....	9
8.2 Emission test chamber preparation.....	9
8.3 Time of odour measurements.....	9
8.4 Conditioning of sample containers.....	9
8.5 Handling of sample containers.....	9
9 Sensory odour panel and panel leader	10
9.1 Panel leader.....	10
9.1.1 General requirements for the panel leader.....	10
9.1.2 Additional requirements for the panel leader for perceived intensity assessments.....	10
9.2 Panel selection.....	11
9.2.1 General requirements for panel selection.....	11
9.2.2 Additional requirements for the panel selection for perceived intensity assessments.....	11
9.3 Code of conduct of the panel members.....	11
9.4 Correct procedure for determination of the panel size.....	12
9.5 Panel training.....	12
10 Sensory test methods and procedure	12
10.1 General.....	12
10.2 Procedure.....	12
10.3 Determination of acceptability.....	13

This is a preview of "ISO 16000-28:2020". [Click here to purchase the full version from the ANSI store.](#)

10.4	Determination of the perceived intensity using a comparative scale.....	14
10.4.1	Comparative scale.....	14
10.4.2	Panel.....	14
10.4.3	Panel training.....	15
10.4.4	Procedure.....	15
10.5	Determination of the hedonic tone	16
11	Data analysis.....	17
11.1	Calculation of mean value and standard deviation.....	17
11.2	Accurace of sensory testing	18
12	Test report.....	18
Annex A	(informative) Training procedure for the comparative scale.....	20
Annex B	(informative) General conditions for sensory testing.....	24
Annex C	(informative) Sampling containers (bags) and sampling and presentation device.....	29
Annex D	(informative) Example for statistical data analysis.....	32
Bibliography	34

This is a preview of "ISO 16000-28:2020". Click here to purchase the full version from the ANSI store.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 146, *Air quality*, Subcommittee SC 6, *Indoor air*.

This second edition cancels and replaces the first edition (ISO 16000-28:2012), which has been technically revised. The main changes compared to the previous edition are as follows:

- besides acceptability and perceived intensity, the hedonic tone is described as odour characteristic;
- a more detailed description of the comparative scale, including information on set-up, check-up and calibration devices;
- recommendation on panel sizes for the different testing procedures (acceptability, perceived intensity and hedonic tone);
- procedure in case of failing the confidence interval.

A list of all parts in the ISO 16000 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Odour evaluation is a complementary method to the chemical testing of emissions from building products and materials.

The determination of odour acceptability, intensity and hedonic tone of emissions from building products and materials using test chambers has objectives such as:

- to provide manufacturers, builders and end users with data useful for the evaluation of the odour impact of building products and materials on the indoor air quality;
- to promote the development of improved products.

The method can also be used for furnishings and consumer products. For this purpose, a suitable exposure scenario (according to the reference room defined in EN 16516) needs to be defined.