
**Reaction to fire tests for products —
Non-combustibility test**

Essais de réaction au feu de produits — Essai d'incombustibilité



This document is a preview generated by EKO



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

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Apparatus	2
5 Test specimen	9
5.1 General	9
5.2 Preparation	9
5.3 Number	10
6 Conditioning	10
7 Test procedure	11
7.1 Test environment	11
7.2 Set-up procedure	11
7.2.1 Specimen holder	11
7.2.2 Thermocouple	11
7.2.3 Electricity supply	11
7.2.4 Furnace stabilization	12
7.3 Calibration procedure	12
7.3.1 Furnace wall temperature	12
7.3.2 Furnace temperature	14
7.3.3 Procedure frequency	16
7.4 Standard test procedure	16
7.5 Observations during test	17
8 Expression of results	17
8.1 Mass loss	17
8.2 Flaming	18
8.3 Temperature rise	18
9 Test report	18
Annex A (informative) Precision of test method	19
Annex B (informative) Typical designs of test apparatus	21
Annex C (normative) Thermocouples for additional measurements	24
Annex D (informative) Temperature recording	26
Bibliography	31

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 92, *Fire safety*, Subcommittee SC 1, *Fire initiation and growth*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 127, *Fire safety in buildings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This sixth edition cancels and replaces the fifth edition (ISO 1182:2010), which has been technically revised. The main changes compared to the previous edition are as follows:

- a second furnace thermocouple has been introduced in [Subclauses 4.4, 7.2.2, 7.2.4](#) and [8.3, Clause 9](#) and [Figure 2](#);
- the calibration procedure of the furnace wall temperature has been adjusted;
- [Formulae \(16\)](#) and [\(17\)](#) have been aligned with the values in Table 3;
- in [Clause 5](#), the range of uncertainty in size of specimen has been reduced;
- [Annex D](#) has been corrected.

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

This fire test has been developed for use by those responsible for the selection of construction products which, whilst not completely inert, produce only a very limited amount of heat and flame when exposed to temperatures of approximately 750 °C.

The limitation of the field of application to testing homogeneous products and substantial components of non-homogeneous products was introduced because of problems in defining specifications for the specimens. The design of the specimen of non-homogeneous products strongly influences the test results, which is the reason non-homogeneous products cannot be tested to this document.

Reaction to fire tests for products — Non-combustibility test

1 Scope

This document specifies a test method for determining the non-combustibility performance, under specified conditions, of homogeneous products and substantial components of non-homogeneous products.

Information on the precision of the test method is given in [Annex A](#).

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 13943, *Fire safety — Vocabulary*

IEC 60584-1, *Thermocouples — Part 1: EMF Specifications and tolerances*

EN 13238, *Reaction to fire tests for building products — Conditioning procedures and general rules for selection of substrates*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13943 and the following apply.

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

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

3.1

product

material, element or component about which information is required

3.2

material

single basic substance or uniformly dispersed mixture of substances

EXAMPLE Metal, stone, timber, concrete, mineral wool with uniformly dispersed binder and polymers.

3.3

loose fill material

material without any physical shape

3.4

homogeneous product

product, consisting of a single material, having uniform density and composition throughout

3.5

non-homogeneous product

product, composed of more than one component, substantial or non-substantial, not having uniform density and composition throughout