

TECHNICAL REPORT

ISO
TR 1896

First edition
1991-02-01

Products in fibre-reinforced cement — Non-combustible fibre-reinforced boards of calcium silicate or cement for insulation and fire protection

*Produits en ciment renforcé par des fibres — Plaques non combustibles,
à base de ciment ou silico-calcaires, renforcées par des fibres, pour
l'isolation et la protection contre le feu*



Reference number
ISO/TR 1896:1991(E)
Documents
Document Sharing Hub

Contents

	Page
1 Scope	1
2 Normative references	1
3 General composition	1
4 Classification	1
5 Requirements	1
5.1 General appearance and finish	1
5.2 Geometrical characteristics	1
5.3 Nominal density	2
5.4 Bending strength	2
5.5 Thermal conductivity	2
5.6 Non-combustibility	3
5.7 Fire protection	3
5.8 Thermal shrinkage	3
5.9 Moisture movement	3
5.10 Sag under humidity	3
5.11 Screw retention	3
6 Test methods	3
6.1 General	3
6.2 Geometrical characteristics (obligatory acceptance test)	3
6.3 Density (obligatory acceptance test)	5
6.4 Bending strength (obligatory type test)	5
6.5 Thermal conductivity (obligatory type test)	7
6.6 Non-combustibility (obligatory type test)	7
6.7 Linear thermal shrinkage (obligatory type test)	7
6.8 Moisture movement (obligatory type test)	8

© ISO 1991
All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.
International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland
Printed in Switzerland

6.9	Sag under humidity (optional type test)	8
6.10	Screw retention (optional type test)	8
7	Marking	9
8	Conformity with standards	9

Annexes

A	Receiving inspection for products which are not subject to third-party certification	10
B	Third-party certification	11
C	Measurement of thermal conductivity	12
D	Bibliography	13

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 main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 1896, which is a Technical Report of type 2, was prepared by Technical Committee ISO/TC 77, *Products in fibre reinforced cement*.

It cancels and replaces ISO Recommendation R 1896:1971 of which it constitutes a technical revision.

Bearing in mind the nature of comments received and the fact that the products in question were still under technical development, the experts were unable to reach agreement on certain technical considerations.

Because there are no criteria for non-combustibility in ISO 1182, the term non-combustible, which is a key element in the Report, is defined only by regulations or national standards.

Even by establishing categories of thermal shrinkage, certain delegates considered that product interchangeability within each category was not possible, given that the concept of structure and performance of the board are closely connected to guarantee fire-resistance.

As a result of this lack of interchangeability, the Draft continually made reference to the need for the product to pass fire tests specified in other International Standards (e.g. ISO 834).

These facts are incompatible with the establishment of a complete International Standard. It was also noted that a large number of these products will be covered by a future International Standard.

As a consequence of these difficulties, it was decided to publish the Draft in the form of a Technical Report.

Annexes A, B and C form an integral part of this Technical Report. Annex D is for information only.

Introduction

ISO/R 1896, *Thermal insulating asbestos boards*, was published in May 1971. In 1974 ISO/TC 77 created a working group to revise this document. This Technical Report, which is the result of the deliberations of the working group, differs from the first edition in a number of important ways which reflect current trends in technology and market requirements. Some of the more important changes are as follows.

- a) This Technical Report applies to any reinforcing fibres.
- b) Greater emphasis has been given to the primary application of these boards in fibre protection and insulation. The boards are required to be non-combustible. Claims made for boards regarding their use in elements of construction required to provide fire resistance are based on the relevant national regulations, International Standard (e.g. ISO 834) or national standard.

All claims should state the standard used.

NOTE 1 In certain countries the term "non-combustible" is not permitted to apply to products. Refer to the appropriate national standards or regulations.

- c) The minimum bending strength requirement has been related to both density and thickness. This is in accordance with practical experience regarding the requirements for board handling.
- d) Many of the fire protection boards covered by this Technical Report retain their integrity in a fire by virtue of their low thermal shrinkage and consequently a test method for thermal shrinkage is included. Boards of higher thermal shrinkage and generally greater thickness can however provide fire protection by other mechanisms (e.g. the maintenance of a high thermal gradient through the thickness of the board so that, although the face exposed to the fire may shrink and micro-craze, the cool face maintains the integrity of the board).

The test methods given are, as far as possible, similar to those for fibre-cement flat sheets.