

British Standard Methods for Determining thermal insulating properties

Part 3. Tests for thermal transmittance and conductance

Section 3.1 Guarded hot-box method

Méthodes de détermination des propriétés d'isolation thermique
Partie 3. Essais de la transmittance et de la conductance thermiques
Section 3.1 Méthode de la boîte chaude gardée

Verfahren zur Bestimmung der wärmedämmenden Eigenschaften
Teil 3. Prüfung des Wärmedurchgangs und der Wärmeleitfähigkeit
Abschnitt 3.1 Verfahren mit Wärmeschrank

Foreword

This Section of BS 874 was prepared under the direction of the Refrigeration, Heating and Air Conditioning Standards Committee.

Previous editions of BS 874 summarized the methods available for determining thermal insulating properties, and indicated which methods were applicable to various materials intended for use in a variety of temperature ranges, but the methods themselves were not defined in detail.

The growing importance of energy conservation and the need to have reliable information about the insulating properties of materials requires detailed specifications of the test methods. Accordingly, a complete revision of the standard is being undertaken, with each test method being fully specified. The full revision of BS 874 will take several years to complete, and it has therefore been decided to issue each test method as a separate Section of BS 874 as and when it is completed, thus gradually replacing the 1973 edition.

The method presented in this Section replaces those given in 4.3 of BS 874 : 1973, which have been deleted by amendment. Equipment of the type now described has been in existence for some time but, until recently, was uncommon in the UK. Nevertheless, the current state of development of the method enables it to be incorporated into the present revision of BS 874.

It should be appreciated that experience in the use of the method is limited. This is especially true for constructions which have local variations of thermal conductance within the test area and spanning the boundary between the metering and guard areas, such as composite masonry elements. Further research on such elements is continuing in order to quantify the effects of these variations of thermal conductance on the accuracy of measurement. Revision of this Section may become necessary as more experience is gained in the use of the method.

The accuracy levels and the reproducibility which may be expected from the method are not well established. Precision experiments, of the type described in BS 5497 : Part 1 : 1979, are necessary before reliable estimates for these can be given.

It is recommended that this Section of BS 874 be read in conjunction with BS 874 : Part 1.

Compliance with a British Standard does not of itself confer immunity from legal obligations.