



BSI Standards Publication

# Isothermal Conduction Calorimetry (ICC) for the determination of heat of hydration of cement: State of Art Report and Recommendations

**National foreword**

This Published Document is the UK implementation of CEN/TR 16632:2014.

The UK participation in its preparation was entrusted to Technical Committee B/516/12, Sampling and testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISBN 978 0 580 83044 0

ICS 91.100.10

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 June 2014.

**Amendments issued since publication**

Date	Text affected
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ICS 91.100.10

English Version

## Isothermal Conduction Calorimetry (ICC) for the determination of heat of hydration of cement: State of Art Report and Recommendations

Bestimmung der Hydratationswärme von Zement durch isotherme Wärmeflusskalorimetrie. Stand der Technik und Empfehlungen

This Technical Report was approved by CEN on 26 November 2013. It has been drawn up by the Technical Committee CEN/TC 51.

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## Foreword

This document (CEN/TR 16632:2014) has been prepared by Technical Committee CEN/TC 51 "Cement and building limes", the secretariat of which is held by NBN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

It is divided into two sections. The first section is a State of Art Report of the test method based on the collection of the technical data sheets of the calorimeters adopted in the European cement laboratories and also on the collection of the results of several experimental activities. The second section is made of recommendations for the measurement of heat of hydration of cement by ICC. Based on the State of Art Report, this section provides some basic elements of the test procedure with the aim to become a first guide for the laboratories that are currently using ICC or for those laboratories that would start to adopt this method. By using the information and adopting the procedures given in the document it will be possible to compare in a more reliable way both the performances of the different calorimeters and the test results.

Annex A (informative) provides a Glossary.

## Introduction

In 2007, CEN/TC 51, through resolution 495, agreed that WG 12/TG 3 investigates the suitability for standardization of the test method based on isothermal conduction calorimetry (ICC). The Task Group 3 has been reactivated and held its first meeting in 2008.

Since no national standard on ICC for the determination of heat of hydration of cement was available, TG 3 started its activity on the item by gathering the available information on recommendations or published scientific papers, inter-laboratory experimental exercises. The available information, collected into a State of Art report, has been analysed and discussed in order to identify those aspects of the test method that can be already considered consolidated as well as those elements that still need further development.

The second step of the activity was the redaction of a Recommendations document including a testing procedure for the measuring of heat of hydration of cement by ICC. The circulation of this document in the laboratory actually involved in ICC testing, would lead to the application of uniform general principles and, therefore, to a better data reproducibility.

In this CEN/TR, the State of Art document and the Recommendations document are reviewed into a single document divided into two parts:

- a) State of art report on the application of ICC for the determination of heat of hydration of cement;
- b) Recommendations for the measurement of Heat of Hydration of Cement by Isothermal Conduction Calorimetry.