

Methods of sampling and test for

**Carbonaceous
materials used in
aluminium
manufacture —**

Part 4: Cold ramming pastes —

Section 4.0 General introduction

Confirmed
November 2008

Committees responsible for this British Standard

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Aluminium Federation
British Ceramic Research Ltd.
Chemical Industries Association
Institute of Petroleum
Refractories Association of Great Britain

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Foreword

This Section of BS 6043 has been prepared under the direction of the Chemicals Standards Policy Committee. It serves as an introduction to BS 6043-4, the general structure of which is given in Table 1. There are 14 Sections of Part 4, published separately. There are no corresponding International Standards; however, it is intended, upon publication of these Sections of BS 6043-4, that they be offered to the International Organization for Standardization (ISO) for possible adoption as International Standards.

Cold ramming pastes are currently undergoing technological development, and the tests described in BS 6043-4 are based on the characteristics of those products which have found widest commercial acceptance. The most widely used category of cold ramming pastes has binders based on coal tar, or to a lesser extent on other bituminous materials, and it is to this category that the Sections of BS 6043-4 are specifically applicable. The other principal category of cold ramming pastes has binders comprising one or more synthetic resin. The differences in the characteristics of the various types of resin which are employed preclude the general application of some Sections of BS 6043-4 to both these categories of cold ramming pastes. This applies particularly to those Sections of BS 6043-4 in which a solvent is used to dissolve the binder. For this reason, BS 6043-4.2, BS 6043-4.3 and BS 6043-4.5 are applicable *only* to cold ramming pastes made with coal tar or other bituminous binders.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Section of BS 6043 outlines, in Table 1, the structure of BS 6043-4 and gives guidance on the relationships of the various Sections concerned.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Sampling and testing

2.1 General

Methods of sampling are given in BS 6043-4.1, which is referred to by all the test methods described in BS 6043-4.2 to BS 6043-4.13, and reference to which is essential.

NOTE Other essential references to British Standards are made in several Sections of BS 6043-4 and these are given in Table 2.

2.2 Ramming and baking

The conditions of ramming and baking have an important effect on the subsequent performance of the rammed baked paste. Therefore, in carrying out tests on rammed baked samples, it is necessary to refer to the detailed descriptions of the methods for ramming and baking given in BS 6043-4.6 and BS 6043-4.7.

2.3 Sequence of testing

In conducting the series of tests which measure the characteristics of baked rammed pastes, advantage may be gained by making the determinations in a sequence which allows the baked test pieces to be used for more than one test. A suitable sequence of testing is given in Figure 1.

Table 1 — List of Sections of BS 6043-4

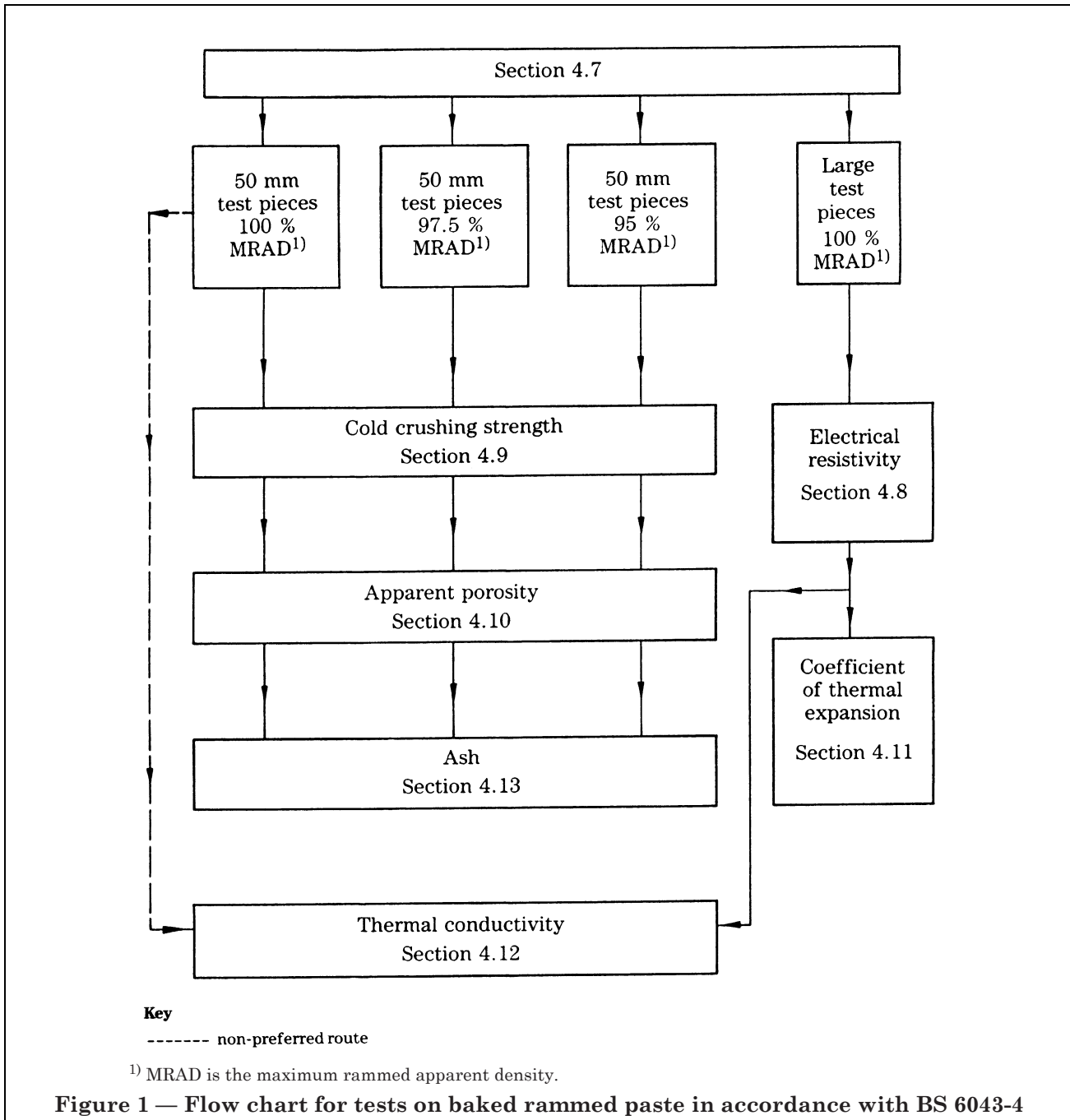
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Section 4.0	General introduction
Section 4.1	Methods of sampling
Section 4.2	Determination of effective binder content and aggregate content by extraction with quinoline; determination of aggregate size distribution
Section 4.3	Determination of aggregate size distribution after extraction by dichloromethane
Section 4.4	Determination of volatile matter content of unbaked paste
Section 4.5	Determination of water content of unbaked paste
Section 4.6	Determination of maximum rammed apparent density
Section 4.7	Preparation of baked rammed test pieces and determination of baked apparent density, change in volume and loss in mass
Section 4.8	Determination of electrical resistivity of baked rammed paste
Section 4.9	Determination of the cold crushing strength of rammed paste
Section 4.10	Determination of the apparent porosity of baked rammed paste
Section 4.11	Determination of the coefficient of thermal expansion of baked rammed paste
Section 4.12 ^a	Determination of the thermal conductivity of baked rammed paste
Section 4.13	Determination of the ash of baked rammed paste

^a In preparation

Table 2 — Additional British Standards to be used with Sections of BS 6043-4

Section of BS 6043-4	Additional Sections of BS 6043 and other British Standards, reference to which is essential
Sections 4.2 to 4.13	BS 6043-4.1
Section 4.7	BS 6043-4.6
Section 4.8	BS 6043-4.6 and BS 6043-4.7
Section 4.9	BS 6043-4.6 and BS 6043-4.7
Section 4.10	BS 6043-2.6, BS 6043-4.6 and BS 6043-4.7
Section 4.11	BS 1902-5.3 BS 6043-4.6 and BS 6043-4.7
Section 4.12 ^a	BS 1902-5.8 BS 6043-4.6 and BS 6043-4.7
Section 4.13	BS 6043-4.6 and BS 6043-4.7

^a In preparation.



Publication(s) referred to

- BS 1902, *Methods of testing refractory materials*.
- BS 1902-5, *Refractory and thermal properties*.
- BS 1902-5.3, *Determination of thermal expansion (horizontal method to 1 100 °C) (method 1902-503)*.
- BS 1902-5.8, *Determination of thermal conductivity (split-column method)¹⁾*.
- BS 6043, *Methods of sampling and test for carbonaceous materials used in aluminium manufacture*.
- BS 6043-2, *Electrode coke*.
- BS 6043-2.6, *Determination of the density in xylene of calcined cokes*.
- BS 6043-4, *Cold ramming pastes*.
- BS 6043-4.1, *Methods of sampling*.
- BS 6043-4.2, *Determination of effective binder content and aggregate content by extraction with quinoline; determination of aggregate size distribution*.
- BS 6043-4.3, *Determination of aggregate size distribution after extraction by dichloromethane*.
- BS 6043-4.4, *Determination of volatile matter content of unbaked paste*.
- BS 6043-4.5, *Determination of water content of unbaked paste*.
- BS 6043-4.6, *Determination of maximum rammed apparent density*.
- BS 6043-4.7, *Preparation of baked rammed test pieces and determination of baked apparent density, change in volume and loss in mass*.
- BS 6043-4.8, *Determination of electrical resistivity of baked rammed paste*.
- BS 6043-4.9, *Determination of the cold crushing strength of rammed paste*.
- BS 6043-4.10, *Determination of the apparent porosity of baked rammed paste*.
- BS 6043-4.11, *Determination of the coefficient of thermal expansion of baked rammed paste*.
- BS 6043-4.12, *Determination of the thermal conductivity of baked rammed paste¹⁾*.
- BS 6043-4.13, *Determination of the ash of baked rammed paste*.

¹⁾ In preparation.

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