

Carbonaceous materials used in the production of aluminium — Baked anodes — Determination of the reactivity to carbon dioxide —

Part 2: Thermogravimetric method

ICS 71.100.10

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National foreword

This British Standard reproduces verbatim ISO 12988-2:2004 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee CII/24, Raw materials for the aluminium industry, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to v, a blank page, pages 1 to 12, an inside back cover and a back cover.

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Carbonaceous materials used in the production of aluminium — Baked anodes — Determination of the reactivity to carbon dioxide —

Part 2: Thermogravimetric method

*Produits carbonés utilisés pour la production de l'aluminium — Anodes
cuites — Détermination de la réactivité au dioxyde de carbone —*

Partie 2: Méthode thermogravimétrique



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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.

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ISO 12988-2 was prepared by Technical Committee ISO/TC 47, *Chemistry*, Subcommittee SC 7, *Aluminium oxide, cryolite, aluminium fluoride, sodium fluoride, carbonaceous products for the aluminium industry*.

ISO 12988 consists of the following parts, under the general title *Carbonaceous materials used in the production of aluminium — Baked anodes — Determination of the reactivity to carbon dioxide*:

- *Part 1: Loss in mass method*
- *Part 2: Thermogravimetric method*

Introduction

The CO₂ reactivities, or reaction rates, are used to quantify the tendency of a carbon artifact to react with carbon dioxide. Carbon consumed by these unwanted side reactions is unavailable for the primary reactions of reducing alumina to the primary metal. CO₂ reactivities and dusting rates are used to quantify the tendency of the coke aggregate or binder coke of a carbon artifact to selectively react with these gases. Preferential attack of the binder coke or coke aggregate of a carbon artifact by these gases causes some carbon to fall off or dust, making the carbon unavailable for the primary reaction of reducing alumina and, more importantly, reducing the efficiency of the aluminium reduction cell.

Comparison of CO₂ reactivities and dusting rates is useful in selecting raw materials for the manufacture of commercial anodes for specific smelting technologies in the aluminium reduction industry.

CO₂ reactivities are used for evaluating effectiveness and beneficiation processes, or for research purposes.

Sampling guidelines are under development.

This part of ISO 12988 is based on ASTM D 6558-00.