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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



Reference number
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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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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

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*

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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.