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Carbonaceous materials used in the production of aluminium — Baked anodes and sidewall blocks — Determination of the reactivity to air —

Part 2: Thermogravimetric method

*Produits carbonés utilisés pour la production de l'aluminium — Anodes
et blocs de façade cuits — Détermination de la réactivité à l'air —*

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 12989-2 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 12989 consists of the following parts, under the general title *Carbonaceous materials used in the production of aluminium — Baked anodes and sidewall blocks — Determination of the reactivity to air*:

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

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Introduction

Comparison of air reactivities, or air reaction rates, and air dusting rates is useful in selecting raw materials for the manufacture of commercial electrodes for specific smelting technologies in the production of aluminium.

Air reactivities are used to quantify the tendency of a carbon artifact to react with air. Carbon consumed by this unwanted side reaction is unavailable for the primary reaction of reducing alumina to the metal. Air reactivities and the dusting rate are used by some companies to quantify the tendency of the coke aggregate or binder coke of a carbon artifact to selectively react with air. Preferential attack of the binder coke or coke aggregate of a carbon artifact by air causes some carbon to fall off as dust, making the carbon unavailable for the primary reaction of reducing alumina and, more importantly, reducing the efficiency of the reduction cell.

Air reactivities are used for evaluating the effectiveness of beneficiation processes and for research purposes.

Sampling guidelines are under development.

This part of ISO 12989 is based on ASTM D 6559-00.