International Standard

ISO 14427

Carbonaceous materials used in the production of aluminium — Cold and tepid ramming pastes — Preparation of unbaked test specimens and determination of apparent density after compaction

Produits carbonés utilisés pour la production de l'aluminium — Pâtes de brasquage froides et tièdes — Préparation d'éprouvettes non cuites et détermination de la densité apparente après compactage

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Foreword

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This document was prepared by Technical Committee ISO/TC *226*, *Materials for the production of primary aluminium*.

This second edition cancels and replaces the first edition (ISO 14427:2004), which has been technically revised.

The main changes are as follows:

— the mass of the falling weight and the ramming rate have been corrected.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The bottom of aluminium electrolysis cells is lined with cathode blocks that are sealed with a ramming paste to avoid any leakage. When lining a cell, the green paste is directly rammed between the cathode blocks and baked in situ during the start-up of the pot by the process heat. The quality of the paste is of primary importance as to ensure long operation without disturbance.

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Carbonaceous materials used in the production of aluminium — Cold and tepid ramming pastes — Preparation of unbaked test specimens and determination of apparent density after compaction

1 Scope

This document describes the preparation of unbaked test specimens made by compacting carbonaceous ramming pastes. This document also includes a method for determination of the apparent density after compaction.

Unbaked test specimens of ramming paste are not only prepared for determination of the apparent density of the paste after compaction, but also for the determination of the dimensional change during baking and for the subsequent determination of properties of baked test specimens.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 14422, *Carbonaceous materials used in the production of aluminium — Cold-ramming pastes — Methods of sampling*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Principle

The carbonaceous ramming paste is compacted in a cylindrical mould by a defined number of impacts at a specified force in a ramming apparatus. The bulk density is calculated from the mass and the dimensions of the resulting compacted test specimen. The test specimen may subsequently be baked, if desired, for further testing.

5 Apparatus and materials

5.1 General. An example of a rammer mould is shown in Figure 1.

5.2 Rammer cylinder. The rammer cylinder is made of steel, with an inner diameter of 50 mm.

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