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Carbonaceous materials for the production of aluminium — Cold and tepid ramming pastes — Expansion/shrinkage during baking

Produits carbonés utilisés pour la production de l'aluminium — Pâtes de brasquage froides et tièdes — Expansion/rétrécissement durant la cuisson

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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 14428:2005), which has been technically revised.

The main changes to the previous edition are as follows:

— Clause 8: new calculation concept based on average expansion/shrinkage within newly defined temperature ranges

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.

Introduction

The expansion/shrinkage of ramming pastes used in the production of aluminium is an important property, because excessive shrinkage can cause cracks in the baked paste serving as a lining material in alumina electrolysis cells. These cracks can cause leakage of the liquid bath, destroying the sidewall lining and the steel shell and thus leading to shutdown of the cell. Ramming pastes change phase from plastic to non-plastic between 400 °C and 600 °C (200 °C and 300 °C for resin binders). The shrinkage which occurs between the temperature at which the paste becomes non-plastic and the operating temperature (950 °C) is an important factor. Apparent shrinkage in the viscous range is due to slumping rather than actual shrinkage.