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Carbonaceous materials for the production of aluminium — Calcined coke for electrodes — Determination of the electrical resistivity of granules

Produits carbonés utilisés pour la production de l'aluminium — Coke calciné — Détermination de la résistivité électrique granulaire

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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 third edition cancels and replaces the second edition, ISO 10143:2014, of which it constitutes a minor revision. The main changes compared to the previous edition are as follows:

— Clause 5, Apparatus, has been updated;

— Clause 10, Test report, has been updated.

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Carbonaceous materials for the production of aluminium — Calcined coke for electrodes — Determination of the electrical resistivity of granules

1 Scope

This document specifies a method for the determination of the electrical resistivity of granular carbon (calcined or graphitized) used in the manufacture of carbon electrodes for the production of aluminium.

The measurement of electrical resistivity assists in assessing the extent of coke calcination. The electrical resistivity of the coke aggregate will influence the electrical resistivity of the coke electrodes made from it.

In general, a more highly calcined coke will have a lower electrical resistivity if other factors, such as grain size, are similar.

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 6375, *Carbonaceous materials for the production of aluminium — Coke for electrodes — Sampling*

ISO 6997, *Carbonaceous materials for the production of aluminium — Calcined coke — Determination of apparent oil content — Heating method*

ISO 8723, *Carbonaceous materials for the production of aluminium — Calcined coke — Determination of oil content — Method by solvent extraction*

ISO 11412, *Carbonaceous materials for the production of aluminium — Calcined coke — Determination of water content*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

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

4 Principle

A test portion of the granular carbon is placed in a cylindrical holder which has electrical contacts at the top and bottom. A fixed pressure is applied to the test portion to ensure good electrical contact and a fixed, constant direct current is applied. The voltage drop and the height of the column of granules are measured and the electrical resistivity is calculated.

5 Apparatus

Ordinary laboratory apparatus, plus the following:

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