

INTERNATIONAL STANDARD

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Carbonaceous materials for the production of aluminium — Green coke and calcined coke for electrodes — Determination of bulk density (tapped)

*Produits carbonés utilisés pour la production de l'aluminium — Coke cru et
coke calciné pour électrodes — Détermination de la masse volumique
apparente (après tassement)*



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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.

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.

International Standard ISO 10236 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*.

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Carbonaceous materials for the production of aluminium — Green coke and calcined coke for electrodes — Determination of bulk density (tapped)

1 Scope

This International Standard specifies a method for the measurement of the bulk density of granular carbon and graphite materials used in the manufacture of carbon electrodes for the production of aluminium.

Bulk density depends on the size, shape and porosity of the granules. For samples with similar grain size and shape, comparison of the real density with the bulk density (tapped) allows the porosity to be assessed. Coke porosity is an important quality parameter which can affect the quality and performance of the carbon electrodes.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3310-1:1990, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*.

ISO 6375:1980, *Carbonaceous materials for the production of aluminium — Coke for electrodes — Sampling*.

3 Principle

The volume of a known mass of material is determined after tapping. The bulk density (tapped) is calculated by division of the known mass by the measured volume.

4 Apparatus

Ordinary laboratory apparatus, plus the following:

4.1 Bulk density measuring device, as shown in figure 1, comprising the elements specified in 4.1.1 to 4.1.3.

4.1.1 Measuring cylinder, having a mass of $190 \text{ g} \pm 15 \text{ g}$, with a scale reading from 0 to 250 ml, capable of measuring to $\pm 1,0 \text{ ml}$.

4.1.2 Cylinder holder, having a guided plunger with a mass of $450 \text{ g} \pm 5 \text{ g}$.

4.1.3 Tapping device, capable of raising and dropping the plunger (see 4.1.2) 250 ± 15 times per minute from a height of $3 \text{ mm} \pm 0,1 \text{ mm}$, fitted with a counter to record the number of taps.

4.2 Test sieves, complying with the requirements of ISO 3310-1.

4.3 Oven, capable of being maintained at $120 \text{ }^{\circ}\text{C} \pm 5 \text{ }^{\circ}\text{C}$.

4.4 Feeder, capable of filling the measuring cylinder in a controlled manner.