INTERNATIONAL STANDARD

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Carbonaceous materials used in the production of aluminium — Prebaked anodes and cathode blocks —

Part 1: Determination of bending/shear strength by the three-point method

Produits carbonés utilisés pour la production de l'aluminium — Anodes précuites et blocs cathodiques —

Partie 1: Détermination de la résistance à la flexion par la méthode trois points

Reference number
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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 226, *Materials for the production of primary aluminium*.

This second edition cancels and replaces the first edition (ISO 12986-1:2000), which has been technically revised.

ISO 12986 consists of the following parts, under the general title *Carbonaceous materials used in the production of aluminium — Prebaked anodes and cathode bocks*:

— *Part 1: Determination of bending strength by the three-point method*

— *Part 2: Determination of bending strength by the four-point method*

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Carbonaceous materials used in the production of aluminium — Prebaked anodes and cathode blocks —

Part 1: Determination of bending/shear strength by the three-point method

1 Scope

This part of ISO 12986 specifies a three-point method to determine the flexural strength of carbon and solid graphite materials at room temperature.

NOTE ISO 12986 is based on DIN 51902.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4288, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture*

ISO 7500-1, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

ISO 8007-1, *Carbonaceous materials used in the production of aluminium — Sampling plans and sampling from individual units — Part 1: Cathode blocks*

ISO 8007-2, *Carbonaceous materials used in the production of aluminium — Sampling plans and sampling from individual units — Part 2: Prebaked anodes*

ISO 8007-3, *Carbonaceous materials used in the production of aluminium — Sampling plans and sampling from individual units — Part 3: Sidewall blocks*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
flexural strength
σ_b
maximum flexural stress developed in a specimen during a flexural test to rupture

Note 1 to entry: The flexural strength is calculated as the quotient of the bending moment at maximum force, before or at rupture of the specimen under the conditions of the three-point method and its section modulus.

$$\sigma_b = \frac{M_b}{Z}$$

where

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