
**Carbonaceous products for the
production of aluminium — Baked
anodes and shaped carbon products —
Determination of the coefficient of linear
thermal expansion**

*Produits carbonés utilisés pour la production de l'aluminium — Anodes
cuites et produits carbonés formés — Détermination du coefficient de
dilatation thermique*



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Foreword

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ISO 14420 was prepared by Technical Committee ISO/TC 226, *Materials for the production of primary aluminium*.

Introduction

This International Standard is based on DIN 51909:1984 prepared by the committee NMP 281 "Prüfverfahren für Kohlenstoff und Graphit" in DIN Deutsches Institut für Normung e.V., Berlin.

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Carbonaceous products for the production of aluminium — Baked anodes and shaped carbon products — Determination of the coefficient of linear thermal expansion

1 Scope

This International Standard specifies a method to determine the coefficient of linear thermal expansion of carbonaceous or graphite materials (solid materials) for the production of aluminium between 20 °C and 300 °C. It applies to baked anodes and shaped carbon products.

2 Normative references

The following referenced documents are indispensable for the application 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 6906, *Vernier callipers reading to 0,02 mm*

ISO 3611, *Micrometer callipers for external measurement*

DIN 1333, *Presentation of numerical data*

3 Terms and definitions

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

3.1

linear thermal expansion coefficient

thermal expansion coefficient $\alpha(\vartheta)$ correlated with the length change of a body with temperature

NOTE The linear thermal expansion coefficient is calculated from the following formula.

$$\alpha(\vartheta) = \frac{1}{l} \cdot \frac{dl}{d\vartheta} \quad (1)$$

where

$\alpha(\vartheta)$ is the linear expansion coefficient;

l is the length of the test specimen at temperature ϑ ;

$\frac{dl}{d\vartheta}$ is the length change with temperature.