
**Fine ceramics (advanced ceramics,
advanced technical ceramics) — Test
method for linear thermal expansion
of monolithic ceramics by push-rod
technique**

*Céramiques techniques — Détermination du coefficient de dilatation
thermique linéique des céramiques monolithiques par la méthode de
la tige poussoir*

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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 206, *Fine ceramics*.

This second edition cancels and replaces the first edition (ISO 17562:2001), which has been technically revised.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for linear thermal expansion of monolithic ceramics by push-rod technique

1 Scope

This International Standard specifies a method for the determination of the linear thermal expansion and the linear thermal expansion coefficient of monolithic ceramics from near liquid nitrogen temperature up to a maximum temperature of 2 000 °C.

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 3611:2010, *Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics*

IEC 13385-1, *Geometrical product specifications (GPS) — Dimensional measuring equipment — Part 1: Callipers; Design and metrological characteristics*

IEC 13385-2, *Geometrical product specifications (GPS) — Dimensional measuring equipment — Part 2: Calliper depth gauges; Design and metrological characteristics*

3 Terms and definitions

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

3.1

linear thermal expansion

between temperatures T_1 and T_2 is the ratio $\Delta L/L_0$, where $\Delta L = (L_2 - L_1)$ and L_0 = specimen length at room temperature

Note 1 to entry: When the temperature has changed from T_1 to T_2 , assume that the length of specimen changes from L_1 to L_2 .

3.2

mean linear thermal expansion coefficient

$\bar{\alpha}$

linear thermal expansion (3.1) divided by $\Delta T = (T_2 - T_1)$ to produce the quotient $\bar{\alpha} = \Delta L / (L_0 \cdot \Delta T)$

3.3

instantaneous linear thermal expansion coefficient

α

value of $\bar{\alpha}$ (3.2) at the limit of $T_2 \rightarrow T_1$

$$\alpha = \lim_{T_2 \rightarrow T_1} [\bar{\alpha}]$$