DIN EN ISO 14574:2025-05 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) - Mechanical properties of ceramic composites at high temperature - Determination of tensile properties (ISO 14574:2025)

Contents

Page

Foreword ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**

4 Principle **3**

5 Apparatus **4**
5.1 Test machine 4
5.2 Load train 4
5.3 Test chamber 4
5.4 Set-up for heating 5
5.5 Strain measurement 5
5.5.1 General 5
5.5.2 Strain gauges 5
5.5.3 Extensometer 5
5.6 Temperature measurement devices 6
5.7 Data recording system 6
5.8 Dimension-measuring devices 6

6 Test specimens **7**
6.1 General 7
6.2 Test specimens commonly used 7

7 Test specimen preparation **11**
7.1 Machining and preparation 11
7.2 Number of tests specimens 11

8 Test procedures **12**
8.1 Test set-up: Temperature considerations 12
8.1.1 General 12
8.1.2 Controlled-temperature zone 12
8.1.3 Temperature calibration 12
8.2 Test set-up: Other considerations 12
8.2.1 Displacement rate 12
8.2.2 Measurement of test specimen dimensions 12
8.3 Testing technique 13
8.3.1 Specimen mounting 13
8.3.2 Setting of extensometer 13
8.3.3 Setting of inert atmosphere 13
8.3.4 Heating of test specimen 13
8.3.5 Measurements 13
8.4 Test validity 14

9 Calculation of results **14**
9.1 Test specimen origin 14
9.2 Tensile strength 14
9.3 Strain at maximum tensile force 15
9.4 Tensile modulus 15
9.4.1 Calculation of tensile modulus 15
9.4.2 Calculation of tensile modulus with linear behaviour at the origin 16
9.4.3 Calculation of tensile modulus with non-linear behaviour 16

10 Test report **16**

11 Uncertainties **17**

Annex A (informative) **Illustration of tensile modulus** **18**

Annex B (informative) **Calibration method of test temperature by using a cartographic specimen equipped with thermocouples** **21**

Bibliography **26**