

ISO 14574:2025-01 (E)

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

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