

DIN EN ISO 14544:2025-04 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) - Mechanical properties of ceramic composites at high temperature - Determination of compressive properties (ISO 14544:2025)

Contents		Page
European foreword		4
Foreword.....		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	6
4	Principle	8
5	Apparatus	9
5.1	Test machine.....	9
5.2	Load train.....	9
5.3	Gastight test chamber.....	9
5.4	Set-up for heating.....	10
5.5	Strain measurement.....	10
5.5.1	General.....	10
5.5.2	Strain gauges.....	10
5.5.3	Extensometer.....	10
5.6	Temperature measurement devices.....	11
5.7	Data recording system.....	11
5.8	Dimension measuring devices.....	12
6	Test specimens	12
6.1	General.....	12
6.2	Compression between platens.....	12
6.3	Test specimen used with grips.....	14
7	Test specimen preparation	16
7.1	Machining and preparation.....	16
7.2	Number of test specimens.....	17
8	Test procedures	17
8.1	Test set-up: temperature considerations.....	17
8.1.1	General.....	17
8.1.2	Controlled-temperature zone.....	17
8.1.3	Temperature calibration.....	17
8.2	Test set-up: other considerations.....	18
8.2.1	Displacement rate.....	18
8.2.2	Measurement of test-specimen dimensions.....	18
8.2.3	Buckling.....	18
8.3	Testing technique.....	19
8.3.1	Specimen mounting.....	19
8.3.2	Setting of extensometer.....	19
8.3.3	Setting of inert atmosphere.....	19
8.3.4	Heating of test specimen.....	19
8.3.5	Measurements.....	20
8.4	Test validity.....	20
9	Calculation of results	20
9.1	Test specimen origin.....	20
9.2	Compressive strength.....	20

9.3	Strain at maximum compressive force	21
9.4	Compressive modulus	21
9.4.1	Calculation of compressive modulus	21
9.4.2	Calculation of compressive modulus with linear behaviour at the origin	22
9.4.3	Calculation of compressive modulus with non-linear behaviour	22
10	Test report	22
11	Uncertainties	23
Annex A	(informative) Illustration of compressive modulus	24
Annex B	(informative) Calibration method of the test temperature using a cartographic specimen equipped with thermocouples	27
Bibliography	32