

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 |