

ISO 19674:2025-06 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) - Methods of test for ceramic coatings - Determination of internal stress in ceramic coatings by application of the Stoney formula

| Contents | Page |
|--|-------------|
| Foreword..... | iv |
| Introduction..... | v |
| 1 Scope..... | 1 |
| 2 Normative references..... | 1 |
| 3 Terms and definitions..... | 1 |
| 4 Principle..... | 1 |
| 5 Apparatus..... | 2 |
| 6 Preparation of test specimens..... | 3 |
| 6.1 Material..... | 3 |
| 6.2 Sample geometry..... | 3 |
| 6.3 Sample surface finish..... | 3 |
| 6.4 Sample dimensions..... | 3 |
| 7 Procedure..... | 4 |
| 7.1 Measuring range and initial profile..... | 4 |
| 7.2 Deposition of the coating..... | 4 |
| 7.3 Coating thickness..... | 5 |
| 7.4 Adjusting the sample geometry after deposition of the coating..... | 5 |
| 7.5 Measuring the final profile..... | 5 |
| 7.6 Calculation of stress..... | 6 |
| 7.6.1 $h_f / h_s < 0,02$ | 6 |
| 7.6.2 $0,02 \leq h_f / h_s < 0,1$ | 7 |
| 7.7 Number of repeat measurements..... | 7 |
| 8 Limits to method..... | 7 |
| 9 Test report..... | 7 |
| Annex A (informative) Determination of suitable dimensions for the test sample..... | 9 |
| Annex B (informative) Internal stress calculation in ceramic coating of real components..... | 11 |
| Bibliography..... | 13 |