DIN EN ISO 20502:2016-11 (E)

Fine ceramics (advanced ceramics, advanced technical ceramics) - Determination of adhesion of ceramic coatings by scratch testing (IS O 20502:2005 including Cor 1:2009)

Contents

Page

European foreword 3

1 Scope 5

2 Normative references 5

3 Principle 5

4 Apparatus and materials 6
4.1 Scratch tester 6
4.2 Diamond stylus 6

5 Preparation of test piece 7
5.1 General requirements 7
5.2 Surface roughness, waviness and levelling 7
5.3 Specimen cleaning 7
5.4 Coating-substrate parameters relevant to a test 8

6 Test procedure 8
6.1 General 8
6.2 Equipment preparation 8
6.3 Environmental conditions 9
6.4 Scratching procedure 9
6.4.1 General 9
6.4.2 Progressive-force scratch test 9
6.4.3 Constant-force scratch test 9
6.4.4 Multi-pass scratch test 9
6.5 Scratch evaluation and critical normal-force determination 10
6.5.1 General 10
6.5.2 Microscope observation 10
6.5.3 Acoustic emission (AE) and frictional force (FF) recording 10

7 Repeatability and limits 11

8 Test report 11

Annex A (normative) Procedure for calibration of a scratch testing system 16

Annex B (informative) Typical failure modes obtained in scratch testing 23

Bibliography 35

Foreword 4