DIN EN ISO 4545-1:2024-01 (E)

Metallic materials - Knoop hardness test - Part 1: Test method (ISO 4545-1:2023)

Contents

Page

European foreword ... **3**

Foreword ... **4**

1 Scope ... **5**

2 Normative references ... **5**

3 Terms and definitions ... **5**

4 Symbols and designations ... **6**
4.1 Symbols and designations used in this document ... 6
4.2 Designation of hardness number ... 6

5 Principle ... **7**

6 Testing machine ... **7**
6.1 Testing machine ... 7
6.2 Indenter ... 7
6.3 Diagonal measuring system ... 7

7 Test piece ... **8**
7.1 Test surface ... 8
7.2 Preparation ... 8
7.3 Thickness ... 8
7.4 Support of unstable test pieces ... 8
7.5 Metallic and other inorganic coatings ... 8

8 Procedure ... **9**
8.1 Test temperature ... 9
8.2 Test force ... 9
8.3 Periodic verification ... 9
8.4 Test piece support ... 9
8.5 Focus on test surface ... 9
8.6 Test force application ... 10
8.7 Prevention of the effect of shock or vibration ... 10
8.8 Minimum distance between adjacent indentations ... 10
8.9 Measurement of diagonal length ... 11
8.10 Calculation of hardness value ... 11

9 Uncertainty of the results ... **11**

10 Test report ... **12**

Annex A (normative) **Procedure for periodic checking of the testing machine, diagonal measuring system and the indenter by the user** ... **13**

Annex B (informative) **Uncertainty of the measured hardness values** ... **15**

Annex C (informative) **Knoop hardness measurement traceability** ... **22**

Annex D (informative) **CCM — Working group on hardness** ... **26**

Annex E (informative) **Adjustment of Köhler illumination systems** ... **27**

Annex F (normative) **Determining the Knoop hardness of metallic and other inorganic coatings** ... **28**

Bibliography ... **32**