

DIN EN 1977:2013-04 (E)

Copper and copper alloys - Copper drawing stock (wire rod)

| Contents | | Page |
|-----------------------|--|-------------|
| Foreword | | 3 |
| Introduction | | 4 |
| 1 | Scope | 5 |
| 2 | Normative references | 5 |
| 3 | Terms and definitions | 5 |
| 4 | Designations | 5 |
| 4.1 | Material | 5 |
| 4.2 | Product | 6 |
| 5 | Ordering information | 7 |
| 6 | Requirements | 7 |
| 6.1 | Composition | 7 |
| 6.2 | Elongation | 7 |
| 6.3 | Electrical properties | 7 |
| 6.4 | Annealability | 12 |
| 6.5 | Hydrogen embrittlement | 12 |
| 6.6 | Scale adhesion | 13 |
| 6.7 | Dimensions and tolerances | 13 |
| 6.8 | Surface condition | 13 |
| 6.9 | Joins | 13 |
| 7 | Sampling | 13 |
| 7.1 | General | 13 |
| 7.2 | Analysis (oxygen only) and measurement of diameter of Cu-ETP1 (CW003A) drawing stock | 14 |
| 7.3 | Annealability testing of Cu-ETP1 (CW003A) drawing stock | 14 |
| 7.4 | Analysis (other than oxygen) and measurement of elongation and electrical properties of Cu-ETP1 (CW003A) drawing stock | 14 |
| 7.5 | Tests on drawing stock in grades other than Cu-ETP1 (CW003A) | 14 |
| 8 | Test methods | 15 |
| 8.1 | Analysis | 15 |
| 8.2 | Elongation | 15 |
| 8.3 | Electrical resistivity | 15 |
| 8.4 | Annealability | 16 |
| 8.5 | Hydrogen embrittlement | 16 |
| 8.6 | Scale adhesion | 16 |
| 8.7 | Rounding of results | 16 |
| 9 | Declaration of conformity and inspection documentation | 16 |
| 9.1 | Declaration of conformity | 16 |
| 9.2 | Inspection documentation | 17 |
| 10 | Marking | 17 |
| Annex A (informative) | Information on electrical resistivity and conductivity relationships | 18 |

| | | |
|----------------------------|--|-----------|
| A.1 | Volume resistivity | 18 |
| A.2 | Standard annealed copper (IACS) | 18 |
| A.3 | Commercial annealed copper | 18 |
| A.4 | Nominal mass resistivity | 18 |
| A.5 | Differences between measured and nominal values | 19 |
| | | |
| Annex B (normative) | Rapid Elongation Test method (AR-Test) for diameter 8 mm Cu-ETP1 wire rod | 20 |
| | | |
| B.1 | General | 20 |
| B.2 | Procedure | 20 |
| B.3 | Test results | 22 |
| | | |
| Bibliography | | 23 |