

DIN EN 12164:2024-12 (E)

Copper and copper alloys - Rod for free machining purposes

| Contents | | Page |
|-------------------------|--|-------------|
| European foreword | | 4 |
| Introduction | | 6 |
| 1 | Scope | 7 |
| 2 | Normative references | 7 |
| 3 | Terms and definitions | 7 |
| 4 | Designations | 8 |
| 4.1 | Material | 8 |
| 4.1.1 | General | 8 |
| 4.1.2 | Symbol | 8 |
| 4.1.3 | Number | 8 |
| 4.2 | Material condition | 8 |
| 4.3 | Product | 8 |
| 5 | Ordering information | 10 |
| 6 | Requirements | 11 |
| 6.1 | Composition | 11 |
| 6.2 | Mechanical properties | 11 |
| 6.3 | Resistance to dezincification | 11 |
| 6.4 | Residual stress level | 12 |
| 6.5 | Dimensions and tolerances | 12 |
| 6.5.1 | Diameter or width across-flats | 12 |
| 6.5.2 | Shape tolerances | 12 |
| 6.5.3 | Straightness | 12 |
| 6.5.4 | Length | 13 |
| 6.5.5 | Corner radii | 13 |
| 6.5.6 | Twist of polygonal rod | 13 |
| 6.5.7 | Shaped ends | 14 |
| 6.6 | Surface quality | 15 |
| 6.7 | Internal inclusion | 16 |
| 7 | Sampling | 16 |
| 7.1 | General | 16 |
| 7.2 | Analysis | 16 |
| 7.3 | Mechanical tests | 16 |
| 7.4 | Dezincification resistance and stress corrosion resistance tests | 16 |
| 8 | Test methods | 17 |
| 8.1 | Analysis | 17 |
| 8.2 | Tensile test | 17 |
| 8.2.1 | General | 17 |
| 8.2.2 | Location of test pieces | 17 |
| 8.2.3 | Shape and size of test pieces | 17 |
| 8.2.4 | Procedure for testing | 17 |
| 8.2.5 | Determination of results | 17 |
| 8.3 | Hardness test | 18 |
| 8.4 | Dezincification resistance test | 18 |

| | | |
|--|---|----|
| 8.5 | Stress corrosion resistance test | 18 |
| 8.6 | Determination of the electrical conductivity | 18 |
| 8.7 | Retests | 18 |
| 8.7.1 | Analysis, tensile test, hardness test and dezincification resistance test, determination of the electrical conductivity | 18 |
| 8.7.2 | Stress corrosion resistance test | 19 |
| 8.8 | Rounding of results | 19 |
| 9 | Certificate of compliance and inspection documentation | 19 |
| 9.1 | Certificate of compliance | 19 |
| 9.2 | Inspection documentation | 19 |
| 10 | Marking, packaging, labelling | 19 |
| Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2014/68/EU (Pressure equipment Directive) aimed to be covered | | 43 |
| Bibliography | | 44 |