

# DIN EN 13604:2013-09 (E)

## Copper and copper alloys - Semiconductor devices, electronic and vacuum products made from high conductivity copper

---

<b>Contents</b>		<b>Page</b>
Foreword .....		3
1	Scope .....	4
2	Normative references .....	4
3	Terms and definitions .....	5
4	Designations .....	5
4.1	Material .....	5
4.2	Symbol .....	5
4.3	Number .....	5
4.4	Material condition .....	5
4.5	Product .....	6
5	Ordering information .....	7
6	Requirements .....	8
6.1	Composition .....	8
6.2	Mechanical properties .....	8
6.3	Electrical properties .....	8
6.4	Freedom from hydrogen embrittlement .....	8
6.5	Scale adhesion .....	9
6.6	Grain size .....	9
6.7	Tolerances of dimensions and form .....	9
6.8	Surface condition .....	9
7	Sampling .....	10
7.1	General .....	10
7.2	Analysis .....	10
7.3	Mechanical, electrical and other tests .....	10
8	Test methods .....	10
8.1	Analysis .....	10
8.2	Tensile test .....	11
8.3	Hardness test .....	11
8.4	Bend test .....	11
8.5	Electrical test .....	11
8.6	Hydrogen embrittlement test .....	11
8.7	Scale adhesion test .....	11
8.8	Estimation of average grain size .....	11
8.9	Retests .....	12
8.10	Rounding of results .....	12
9	Declaration of conformity and inspection documentation .....	12
9.1	Declaration of conformity .....	12
9.2	Inspection documentation .....	12
10	Marking, packaging, labelling .....	12
Annex A (normative)	Reference chart for microscopic examination at magnification 100× .....	15

<b>Annex B (informative) Characteristics of coppers for electrical purposes .....</b>	<b>16</b>
<b>Bibliography .....</b>	<b>18</b>
<b>Figures Figure A.1 -- Reference chart for microscopic examination at magnification 100× .....</b>	<b>15</b>
<b>Tables Table 1 -- Composition of Cu-OFE and Cu-PHCE .....</b>	<b>13</b>
<b>Table 2 -- Electrical properties (at 20 °C) .....</b>	<b>14</b>
<b>Table B.1 -- Particular characteristics of coppers for electrical purposes .....</b>	<b>17</b>