

substance: boron compounds with group III elements
property: properties of α -AlB₁₂ type compounds

lattice parameters

| Compound | a [Å] | c [Å] | |
|---|-----------|-----------|-----|
| Al _{1.0} Be _{0.7} B ₂₂ | 10.180(2) | 14.257(2) | 87H |
| Al _{1.1} Be _{0.7} B ₂₂ | 10.171(3) | 14.238(4) | |
| Al _{1.1} Be _{0.8} B ₂₂ | 10.168(4) | 14.262(2) | |
| Al _{1.2} Be _{0.5} B ₂₂ | 10.174(1) | 14.235(5) | |

occupancies of metal sites (in %)

| | | |
|-------|-----------------------|-----|
| Al(1) | 38...39 | 87H |
| Al(2) | 32...34 | |
| Al(3) | 38...48 | |
| Al(4) | below detection limit | |
| Al(5) | 0...2 | |
| Be(1) | 33...38 | |
| Be(2) | 18...19 | |
| Be(3) | 2...19 | |
| Be(4) | 0...5 | |
| Be(5) | 0...6 | |

electrical conductivity

Resistivity in Fig. 1 [87G].

microhardness

| | | | | |
|-------|--------------------------|-------------|--|-----|
| H_K | 2300 kg mm ⁻² | $T = 300$ K | Al _{1.2} Be _{0.5} B _y | 88W |
|-------|--------------------------|-------------|--|-----|

References:

- 87G Golikova, O.A.: in: Novel Refractory Semiconductors, MRS Symp. Proc. Vol. 97, D. Emin, T.L. Aselage, C. Wood ed., Materials Research Soc.: Pittsburgh, 1987, p. 17.
- 87H Higashi, I., Ito, T.: in: Proc. 9th Int. Symp. Boron, Borides and Rel. Compounds, University of Duisburg, Germany, Sept. 21 - 25, 1987, H. Werheit ed., University of Duisburg: Duisburg, 1987, p. 41.
- 88W Werheit, H.: in: Prog. Cryst. Growth Charact. Vol. 16, V.N. Gurin ed., Pergamon Press: London, 1988, p. 179.

Fig. 1.

(Be,Al)B₁₂. Electrical resistivity vs. reciprocal temperature [87G].

