

**substance: boron compounds with lanthanides**

**property: general remarks and properties**

The diborides and the tetraborides of the lanthanides seem all to be metallic (cf. [75S, 77E, 77S1, 77S2, 81G, 81W, 79W, 79K, 79E, 79P]).

**tetraborides**

Crystallographic structure of the rare earth tetraborides in Fig. 1 [86W].

A new criterion for explaining the polar and reticular microhardness anisotropy of tetra- and hexaborides of lanthanides (and actinides) in [97D].

See also document on **structural properties of tetraborides with B<sub>6</sub> octahedra**

## References:

- 75S Samsonov, G. V., Serebryakova, T. I., Neronov, V. A.: Boridy, Moskva Atomizdat, 1975.
- 77B Berezin, A. A., Golikova, O. A., Zaitsev, V. R., Kazanin, M. M., Orlov, V. M., Tkalenko, E. N., in: Boron and Refractory Borides, (Matkovich V. 1., ed.) Springer: Berlin, Heidelberg, New York 1977, p. 52.
- 77E Etourneau, J., Mercuno, J. P., Hagenmuler, P.: see [77B], p. 115.
- 77S1 Samsonov, G. V., Kovenskaya, B. A.: see [77B], p. 5.
- 77S2 Samsonov, G. V., Kovenskaya, B. A.: see [77B], p. 19.
- 79E Etourneau, J., Mercuno, J. P., Berrada, A., Hagenmuller, P., Georges, R., Bourezg, R., Gianduzzo, J. C.: J. Less-Common Met. 67 (1979) 531.
- 79K Kuz'ma, Yu. B., Bilinozhko, N. S., Mykhalenko, S. I., Stepanchikova, G. F., Chaban, N. F.: J. LessCommon Met. 67 (1979) 51.
- 79P Paderno, Yu. B., Konovalova, E. S.: J. Less-Common Met. 67 (1979) 185.
- 79W Will, G., Schäfer, W.: J. Less-Common Met. 67 (1979) 31.
- 81G Gianduzzo, J. C., Georges, R., Chevalier, B., Etourneau, J., Hagenmuller, P., Will, G., Schäfer, W., Elf, F.: see [81A1], p. 29.
- 81W Will, G., Schäfer, W., Pfeiffer, F., Elf, F., Etourneau, J.: J. Less-Common Met. 82 (1981) 349 (Proc. 7th Int. Symp. Boron, Borides and Rel. Compounds, Uppsala, Sweden, 1981).
- 86W Will, G., Heiba, Z., Schäfer, W., Jansen, E.: in: Boron-Rich Solids (AIP Conf. Proc. 140), Albuquerque, New Mexico 1985, D. Emin, T.L. Aselage, C.L. Beckel, I.A. Howard ed., American Institute of Physics: New York, 1986, p. 130.
- 97D Derkachenko, I.I., Gurin, V.N., Korsukova, M.M., Jung, W., Müller, R.: J. Solid State Chem. 133 (1997) 296 (Proc. 12th Int. Symp. Boron, Borides and Rel. Compounds, Baden, Austria, 1996).

**Fig. 1.**

Metal tetraborides. Crystal structure; **(a)** unit cell; **(b)**  $x0y$  plane [77E, 81W, 86W].

