

**substance: boron compounds with lanthanides**

**property: properties of lanthanide borides of the type MB<sub>66</sub>: DyB<sub>66</sub>**

**energy gap**

$E_g$	0.72 eV	el. cond.	87G
	0.70 eV	Seebeck effect	86G

X-ray emission spectrum in [91G].

**Transport properties**

**electrical conductivity**

(in  $\Omega^{-1}\text{cm}^{-1}$ )

$\sigma$	$7 \cdot 10^{-3}$	$T = 300 \text{ K}$	87G
	$7.5 \cdot 10^{-3}$		86G
	$3.2 \cdot 10^{-5}$	$T = 300 \text{ K}$	91W

**Hall mobility**

$\mu_H$	$10 \text{ cm}^2\text{V}^{-1}\text{s}^{-1}$	86G, 87G
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**thermoelectric power**

$S$	$130 \mu\text{V K}^{-1}$	86G, 87G
	$730 \mu\text{V K}^{-1}$	91W

Temperature dependence of the electrical conductivity in Fig. 1 [91W, 86G, 87G].

Temperature dependence of the electrical conductivity at different frequencies in Fig. 2 [88W].

Frequency dependence of the electrical conductivity at different temperatures in Fig. 3 [88W].

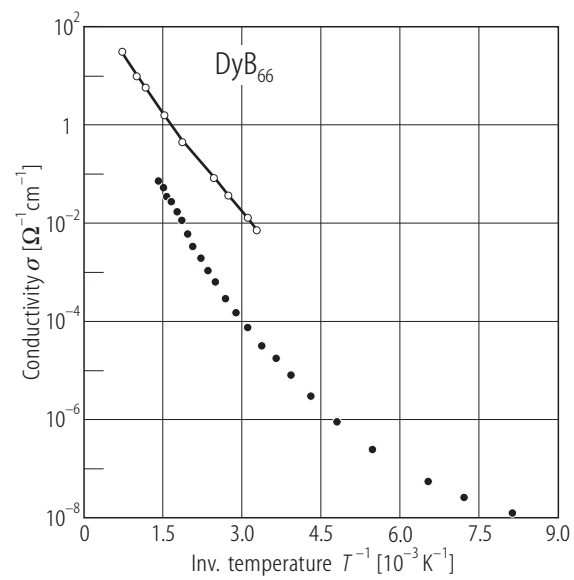
Temperature dependence of the thermoelectric power in Fig. 4 [87G, 86G, 91W].

## References:

- 86G Golikova, O.A., Tadzhiev, A.: J. Non-Cryst. Solids 87 (1986) 64.
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- 88W Werheit, H., Kuhlmann, U., Tanaka, T.: (unpublished results).
- 91G Golikova, O.A.: in: Boron-Rich Solids, Proc. 10th Int. Symp. Boron, Borides and Rel. Compounds, Albuquerque, NM 1990 (AIP Conf. Proc. 231), D. Emin, T.L. Aselage, A.C. Switendick, B. Morosin, C.L. Beckel ed., American Institute of Physics: New York, 1991, p. 108.
- 91W Werheit, H., Kuhlmann, U., Tanaka, T.: in: Boron-Rich Solids, Proc. 10th Int. Symp. Boron, Borides and Rel. Compounds, Albuquerque, NM 1990 (AIP Conf. Proc. 231), D. Emin, T.L. Aselage, A.C. Switendick, B. Morosin, C.L. Beckel ed., American Institute of Physics: New York, 1991, p. 125.

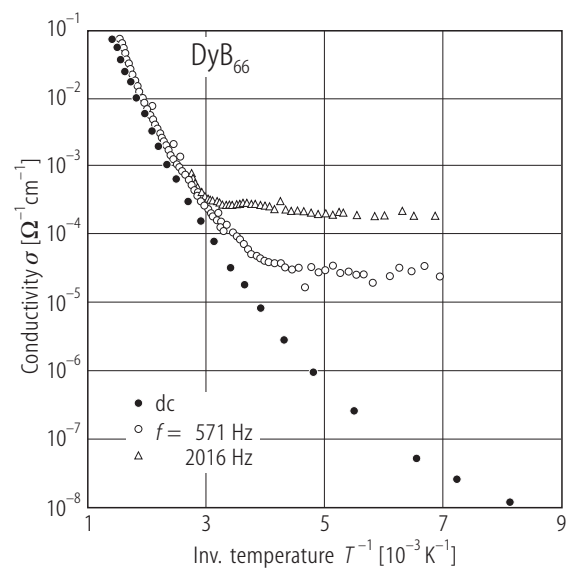
**Fig. 1.**

DyB<sub>66</sub>. Temperature dependence of the electrical conductivity vs. reciprocal  $T$ . Full circles, [91W]; open circles, [86G, 87G].



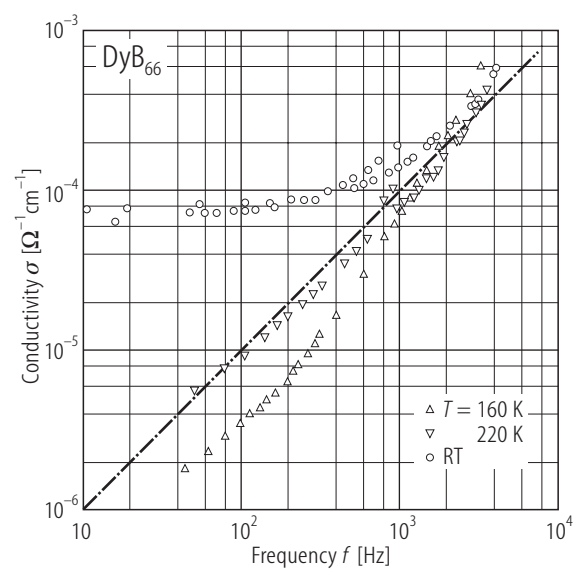
**Fig. 2.**

DyB<sub>66</sub>. Temperature dependence of the electrical conductivity at different frequencies vs. reciprocal  $T$  [88W].



**Fig. 3.**

DyB<sub>66</sub>. Frequency dependence of the electrical conductivity at different temperatures [88W].



**Fig. 4.**

DyB<sub>66</sub>. Temperature dependence of the thermoelectric power. Open circles, [87G, 86G]; full circles, [91W].

