substance: Tb_2Cl_3
property: crystal structure, physical properties

Tb_2Cl_3 [91S]

structure: monoclinic, C2/m

lattice parameters

a	15.184 Å			81S
b	3.869 Å			
c	10.135 Å			
β	118.07°			

Néel temperature

T_N	41 K			85K

paramagnetic Curie temperature

Θ_p	–91 K, –116 K			85K

magnetic moment

p_A	9.7 μ_B	per RE atom		85K

energy gap

E_g	1.1 eV			85K

temperature dependence of resistivity: Fig. 1
temperature dependence of susceptibility: Fig. 2
temperature dependence of specific heat C_p: Fig. 3

References:

81S Simon, A.: Angew. Chem. 93 (1981) 23; Angew. Chem. Int. Ed. Engl. 20 (1981) 1.

82B Bauhofer, W., Simon, A.: Z. Naturforsch. A37 (1982) 568.

85K Kremer, R.K.: Thesis (Darmstadt, Germany) 1985.

91S Simon, A., Mattausch, HJ., Miller, G.J., Bauhofer W., Kremer, R.K.: "Metal-Rich Halides" in: Handbook on the Physics and Chemistry of Rare Earths, Vol. 15, Gschneidner, K.A., Jr., Eyring, L. (eds.), Elsevier Science, 1991.

Fig. 1.

Tb_2Cl_3, Gd_2Cl_3. Resistivity as a function of temperature. The microwave measurements shown in the lower part were obtained on two different single crystals [82B].

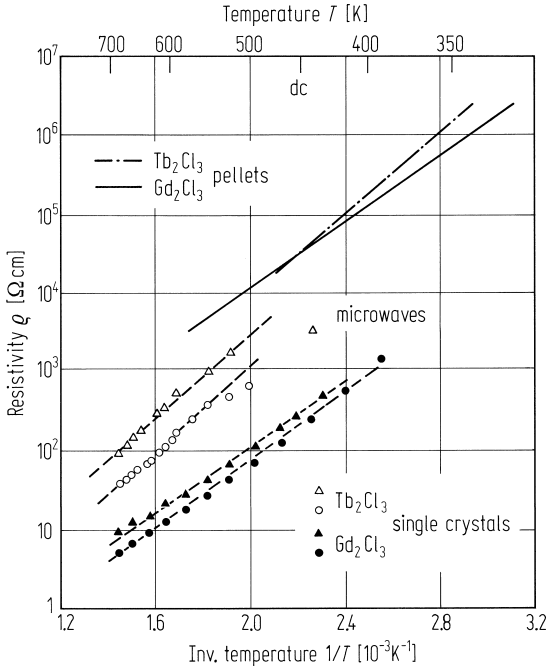

Fig. 2.

Tb_2Cl_3. Single-crystal susceptibilities (in CGS-emu) (per formula unit $TbCl_{1.5}$) with external magnetic field (10^{-2} T) applied parallel and perpendicular to the *b* axis [91S].

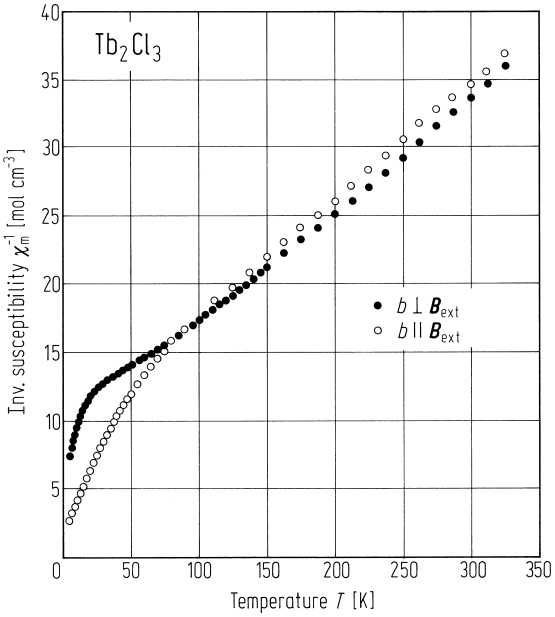

Fig. 3.

Tb_2Cl_3, Y_2Cl_3. Specific heats vs. temperature. The arrow indicates the 3D ordering transition [91S].