

Cel C3-

2000

F: GdCl₃

P: 3

133:325873 Molecular structure of GdCl₃. Nuclear dynamics of the trichlorides of Gd, Tm, and Lu.

Giricheva, Nina I.; Zakharov, Alexander V.; Shlykov, Sergei A.; Girichev, Georgii V. Department of Physics, Ivanovo State University of Chemistry and Technology Ivanovo 153000, Russia Dalton, (19), 3401-3403 (English) 2000. The structure of GdCl₃ was studied by joint gas-phase electron diffraction and mass



spectrometry methods at $T = 1160$ K. The following thermal-av. parameters were detd.: $rg(\text{Gd-Cl}) = 247.4(5)$, $rg(\text{Cl.cntdot..cntdot..cntdot.Cl}) = 422.0(16)$, $lg(\text{Gd-Cl}) = 9.6(1)$, $lg(\text{Cl.cntdot..cntdot..cntdot.Cl}) = 33.3(12)$ pm; $\text{Cl-Gd-Cl } 117.0(11).\text{degree..}$ A dynamic model taking into account the out-of-plane bending vibration anharmonicity was applied in the anal. Previously obtained exptl. data for LuCl_3 and TmCl_3 were also reanalyzed using this model; all 3 mols. have planar (D_{3h}) equil. structures.