

COMPONENTS: (1) Gadolinium fluoride; GdF_3 ; [13765-26-9] (2) Dimethylsulfoxide; C_2H_6OS ; [67-68-5]	ORIGINAL MEASUREMENTS: Kirmse, E.M. <i>Wiss. Hefte, Paed. Inst. Koethen</i> <u>1978</u> , 2, 85-90.
VARIABLES: Room Temperature	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: <p>The solubility of GdF_3 in $(CH_3)_2SO$ at room temperature was given as</p> <p style="text-align: center;">0.035 mass %</p> <p>The corresponding molality calculated by the compiler is</p> <p style="text-align: center;">0.0016 mol kg^{-1}</p> <p>The solid phase was dried in a desiccator over P_4O_{10} and the Gd:F ratio found to be almost 1:3.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Isothermal method. About 100 mg of GdF_3 was added to 10-20 cm^3 of solvent, and the mixture mechanically agitated at room temp for 100 h. 5-10 g of saturated solution were removed by decanting or by centrifuging, and the solution evaporated to dryness. The residue was heated with about 10 cm^3 of 10% KOH solution for 1-2 h to obtain solid $Gd(OH)_3$ and a basic F^- solution. The precipitate was washed, dissolved in aq HCl, and Gd determined several times by complexometric titration with potentiometric endpoint detection (1). The fluoride content in the filtrate was determined photo-metrically using Al-Eriochrome cyanine color lake indicator (2). The reported solubility is a mean of "numerous parallel determinations," or "at least two parallel determinations."	SOURCE AND PURITY OF MATERIALS: Gd_2O_3 (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was $GdF_3 \cdot 0.5H_2O$ and was dehydrated by washing with acetone followed by drying at 310°C for 120 hours. The solvent was dried and purified by "standard methods." ESTIMATED ERROR: Soly: results with relative errors exceeding 50% were rejected. Temp: nothing specified. REFERENCES: 1. Schilbach, U.; Kirmse, E.M. <i>Z. Chem.</i> <u>1974</u> , 14, 484. 2. Schilbach, U.; Hetze, I.; Kirmse, E.M. <i>Chemia Analityczna</i> <u>1975</u> , 20, 33.