COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Terbium fluoride; TbF_3; [13708-63-9] (2) Ethers	Dressler, H. *Dissertationschrift.* Paed. Inst. Koethen, GDR. 1980.
VARIABLES:	**PREPARED BY:**
Room Temperature	T. Mioduski and M. Salomon

EXPERIMENTAL VALUES:

solvent			solubility[a] mass %	solubility[a] 10^4 mol/100 g sln
1-methoxydecane;	$C_{11}H_{24}O$;	[7289-52-3]	0.03	1.39[a]
1-(chloromethoxy)butane;	$C_5H_{11}ClO$;	[2351-69-1]	0.03	1.39[b]

[a] Solid phase. Tb:F:ether:H_2O ratio found to be 1:2.82:0.11:0.34.

[b] Solid phase. Tb:F:ether ratio found to be 1:2.99:0.26.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Method analogous to that described in (1). No other information available.

SOURCE AND PURITY OF MATERIALS:
It appears that the fluoride was prepared as in (1). In spite of drying the fluoride by two methods at 573 K, the Tb:F:H_2O ratio was 1:3.00:0.12.

No other information available.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
1. Kirmse, E.M. *Wiss. Hefte, Paed. Inst. Koethen.* 1978, 2, 85.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Terbium fluoride; TbF_3; [13708-63-9]	Kirmse, E.M.
(2) Dimethylsulfoxide; C_2H_6OS; [67-68-5]	*Wiss. Hefte, Paed. Inst. Koethen* 1978, *2*, 85-90.
VARIABLES:	**PREPARED BY:**
Room Temperature	T. Mioduski

EXPERIMENTAL VALUES:

The solubility of TbF_3 in $(CH_3)_2SO$ at room temperature was given as

0.01 mass %.

The corresponding molality calculated by the compiler is

4.7×10^{-4} mol kg^{-1}

The solid phase was dried in a desiccator over P_4O_{10} and the Tb:F ratio found to be almost 1:3.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method. About 100 mg of TbF_3 was added to 10-20 cm^3 of solvent, and the mixture mechanically agitated at room temperature 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 $Tb(OH)_3$ and a basic F^- solution. The precipitate was washed, dissolved in aq HCl, and Tb determined several times by complexometric titration with potentiometric endpoint detection (1). The fluoride content in the filtrate was determined photometrically 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:

Tb_4O_7 (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was $TbF_3.0.5H_2O$ 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. *Z. Chem.* 1974, *14*, 484.
2. Schilbach, U.; Hetze, I.; Kirmse, E.M. *Chemia Analityczna* 1975, *20*, 33.