COMPONENTS:
(1) Erbium fluoride; ErF₃; [13760-83-3]
(2) Alcohols

VARIABLES:
Room temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>solvent</th>
<th>ErF₃ solubilityᵃᵇ</th>
<th>mass %</th>
<th>mol kg⁻¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>methanol</td>
<td>[67-56-1]</td>
<td>0.01</td>
<td>4.5 x 10⁻⁴</td>
</tr>
<tr>
<td>ethanol</td>
<td>[64-17-5]</td>
<td>0.01</td>
<td>4.5 x 10⁻⁴</td>
</tr>
</tbody>
</table>

ᵃMolalities calculated by the compilers.
ᵇSolid phases were dried in a desiccator over P₄O₁₀ and the Er:F ratio found to equal almost 1:3.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Isothermal method. About 100 mg of ErF₃ was added to 10-20 cm³ 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 cm³ of 10% KOH solution for 1-2 h to obtain solid Er(OH)₃ and a basic F⁻ solution. The precipitate was washed, dissolved in aq HCl, and Er 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.

The reported solubility is a mean of "numerous parallel determinations," or "at least two parallel determinations."

SOURCE AND PURITY OF MATERIALS:
Er₂O₃ (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was ErF₃·0.5H₂O and was dehydrated by washing with acetone followed by drying at 310°C for 120 hours.

The solvents were dried and purified by "standard methods."

ESTIMATED ERROR:
Soly: results with relative errors exceeding 50% were rejected.
Temp: unknown.

REFERENCES:
COMPONENTS:
(1) Erbium fluoride; ErF₃; [13760-83-3]
(2) Ethers

VARIABLES:
Room temperature

EXPERIMENTAL VALUES:

<table>
<thead>
<tr>
<th>Solvent</th>
<th>ErF₃ solubility</th>
<th>solid phase Er:F:solvent ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-methoxydecane; n-C₁₁H₂₄O</td>
<td>0.02 9x10⁻⁵</td>
<td>1:2.95:0.15</td>
</tr>
<tr>
<td>1-(chloromethoxy)butane; n-C₅H₁₁ClO</td>
<td>0.02 9x10⁻⁵</td>
<td>1:2.88:0.33</td>
</tr>
</tbody>
</table>

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 Er:F:H₂O ratio was 1:3.01:0.50.

No other information available.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
The solubility of ErF$_3$ in [CH$_3$(CH$_2$)$_3$]$_3$P(0) at room temperature was given as 0.01 mass %

The corresponding molality calculated by the compiler is $4.5 \times 10^{-4}$ mol kg$^{-1}$

The solid phase was dried in a desiccator over P$_4$O$_{10}$ and the Er:F ratio determined to be almost 1:3.
**COMPONENTS:**

1. Erbium fluoride; ErF$_3$; [13760-83-3]
2. Dimethylsulfoxide; C$_2$H$_6$OS; [67-68-5]

**VARIABLES:**

Room Temperature

**EXPERIMENTAL VALUES:**

The solubility of ErF$_3$ in (CH$_3$)$_2$SO at room temperature was given as 0.03 mass %

The corresponding molality calculated by the compiler is $1.3 \times 10^{-3}$ mol kg$^{-1}$

The solid phase was dried in a desiccator over P$_2$O$_5$ and the Er:F ratio found to be almost 1:3.

**METHOD/APPARATUS/PROCEDURE:**

Isothermal method. About 100 mg of ErF$_3$ 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 Er(OH)$_3$ and a basic F$^{-}$ solution. The precipitate was washed, dissolved in aq HCl, and Er determined several times by complexometric titration with potentiometric end-point 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:**

Er$_2$O$_3$ (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was ErF$_3$.0.5H$_2$O 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: unknown.

**REFERENCES:**

<table>
<thead>
<tr>
<th>COMPONENTS:</th>
<th>ORIGIANAL MEASUREMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Erbium fluoride; ErF₃; [13760-83-3]</td>
<td>Kirmse, E.M.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLES:</th>
<th>PREPARED BY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room Temperature</td>
<td>T. Mioduski</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXPERIMENTAL VALUES:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The solubility of ErF₃ in pyridine at room temperature was reported to be</td>
<td></td>
</tr>
<tr>
<td>0.02 mass %</td>
<td></td>
</tr>
<tr>
<td>The corresponding molality calculated by the compiler is</td>
<td></td>
</tr>
<tr>
<td>$8.9 \times 10^{-4}$ mol kg⁻¹</td>
<td></td>
</tr>
<tr>
<td>The solid phase was dried in a desiccator over P₂O₁₁ and the Er:F ratio found to equal</td>
<td></td>
</tr>
<tr>
<td>almost 1:3.</td>
<td></td>
</tr>
</tbody>
</table>

**AUXILIARY INFORMATION**

**METHOD/APPARATUS/PROCEDURE:**
Isothermal method. About 100 mg of ErF₃ was added to 10-20 cm³ 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 cm³ of 10% er(OH)₃ and a basic F⁻ solution. The precipitate was washed, dissolved in aq HCl, and Er determined several times by complexometric titration with potentiometric end-point detection (1). The fluoride content in the filtrate was determined photometrically using Al-Erlochrome 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:**
ErgO₃ (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was ErF₃.0.5H₂O 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:**
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**REFERENCES:**