COMPONENTS:

(1) Praseodymium fluoride; PrF_3; [13709-46-1]

(2) Methanol; CH_4O; [67-56-1]

ORIGINAL MEASUREMENTS:

Kirmse, E.M.

Wiss. Hefte, Paed. Inst. Koethen 1978, *2*, 85-90.

VARIABLES:

Room temperature

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrF_3 in methanol at room temperature was reported to be

0.01 mass %

The corresponding molality calculated by the compiler is

5.1×10^{-4} mol kg^{-1}

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

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method. About 100 mg of PrF_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 $Pr(OH)_3$ and a basic F^- solution. The precipitate was washed, dissolved in aq HCl, and Pr 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:

Pr_6O_{11} (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was $PrF_3.0.5H_2O$ 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: unknown.

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.

COMPONENTS:

(1) Praseodymium fluoride; PrF_3; [13709-46-1]

(2) 1-(Chloromethoxy) butane; $C_4H_{11}ClO$; [2351-69-1]

ORIGINAL MEASUREMENTS:

Dressler, H.

Dissertationschrift. Paed. Inst. Koethen. GDR. 1980.

VARIABLES:

Room Temperature

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrF_3 in chloromethyl n-butyl ether was reported to be

0.03 mass %

and

1.52×10^{-4} mol/100 g of solution.

The corresponding molality calculated by the compiler is

1.52×10^{-3} mol kg^{-1}

In the solid phase the Pr:F:ether ratio was found to be

1:2.90:0.23.

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 Pr:F:H_2O ratio was 1:3.00:0.38.

No other information available.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

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

COMPONENTS:

(1) Praseodymium fluoride; PrF_3; [13709-46-1]

(2) 1-Methoxydecane; $C_{11}H_{24}O$; [7289-52-3]

ORIGINAL MEASUREMENTS:

Dressler, H.

Dissertationschrift. Paed. Inst. Koethen. GDR. 1980.

VARIABLES:

Room Temperature

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrF_3 in methyl n-decyl ether was reported to be

0.02 mass %

and

1.01×10^{-4} mol/100 g sln

The corresponding molality calculated by the compiler is

1.01×10^{-3} mol kg^{-1}.

In the solid phase the Pr:F:ether ratio was found to be

1:2.91:0.10.

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 Pr:F:H_2O ratio was 1:3.00:0.38.

No other information available.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

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

COMPONENTS:

(1) Praseodymium fluoride; PrF_3
[13709-46-1]

(2) Tetrahydrofuran; C_4H_8O;
[109-99-9]

ORIGINAL MEASUREMENTS:

Rossmanith, K.

Monatsh. Chem. 1966, 97, 1357-64.

VARIABLES:

Room Temperature: T/K - 294-296

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of $PrBr_3$ in tetrahydrofuran at 21-23°C was reported to be

0.62 g per 100 ml of solution (0.016 mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method employed. The solution was equilibrated in an extractor with agitation for 60-80 hours at room temperature.

Praseodymium was determined by the oxalate method and by titration with EDTA using Xylenol Orange indicator. The solvent was determined by difference.

Anhydrous materials were handled in a dry box through which was passed a stream of nitrogen free of carbon dioxide.

The solid phase is $PrBr_3.4C_4H_8O$.

SOURCE AND PURITY OF MATERIALS:

Sources and purities of initial materials not specified. $PrBr_3$ was prepared by conversion of the oxide by high temperature reaction with an excess of NH_4Br followed by heating the product in a stream of dry nitrogen, and then in vacuum to remove unreacted NH_4Br.

Tetrahydrofuran was distilled from $LiAlH_4$.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:

(1) Praseodymium fluoride; PrF_3; [13709-46-1]

(2) Tributyl phosphate; $C_{12}H_{27}O_4P$; [126-73-8]

ORIGINAL MEASUREMENTS:

Kirmse, E.M.

Wiss. Hefte, Paed. Inst. Koethen 1978, *2*, 85-90.

VARIABLES:

Room temperature

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrF_3 in $[CH_3(CH_2)_3]_3P(O)$ at room temperature was given as

0.02 mass %

The corresponding molality calculated by the compiler is

$$1.0 \times 10^{-3} \text{ mol kg}^{-1}$$

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

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method. About 100 mg of PrF_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 $Pr(OH)_3$ and a basic F^- solution. The precipitate was washed, dissolved in aq HCl, and Pr 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:

Pr_6O_{11} (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was $PrF_3 . 0.5H_2O$ 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: unknown.

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.

COMPONENTS:

(1) Preseodymium fluoride; PrF_3; [13709-46-1]

(2) Dimethylsulfoxide; C_2H_6OS; [67-68-5]

ORIGINAL MEASUREMENTS:

Kirmse, E.M.

Wiss. Hefte, Paed. Inst. Koethen 1978, *2*, 85-90.

VARIABLES:

Room temperature

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrF_3 in $(CH_3)_2SO$ at room temperature was given as

0.03 mass %

The corresponding molality calculated by the compiler is

$$1.5 \times 10^{-3} \text{ mol kg}^{-1}$$

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

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method. About 100 mg of PrF_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 $Pr(OH)_3$ and a basic F^- solution. The precipitate was washed, dissolved in aq HCl, and Pr 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:

Pr_6O_{11} (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was $PrF_3.0.5H_2O$ 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: unknown.

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.

COMPONENTS:

(1) Praseodymium fluoride; PrF_3; [13709-46-1]

(2) Pyridine; C_6H_5N; [110-86-1]

ORIGINAL MEASUREMENTS:

Kirmse, E.M.

Wiss. Hefte, Paed. Inst. Koethen 1978, *2*, 85-90.

VARIABLES:

Room temperature

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrF_3 in pyridine at room temperature was reported to be

$$0.07_5 \text{ mass \%}$$

The corresponding molality calculated by the compiler is

$$3.8 \times 10^{-3} \text{ mol kg}^{-1}$$

The solid phase was dried in a desiccator over P_4O_{11} and the Pr:F ratio found to equal almost 1:3.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method. About 100 mg of PrF_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 $Pr(OH)_3$ and a basic F^- solution. The precipitate was washed, dissolved in aq HCl, and Pr 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:

Pr_6O_{11} (source and purity not specified) was dissolved in HCl and the fluoride precipitated by addition of aq HF. The solid produced was $PrF_3.0.5H_2O$ 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: unknown.

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.

COMPONENTS:

(1) Praseodymium fluoride; PrF_3; [13709-46-1]

(2) Acidic nitrosyl fluoride; NOF.3HF; [14947-17-2]

ORIGINAL MEASUREMENTS:

Galkin, N.P.; Shishkov, Yu.D. Khomyakov, V.I.

Radiokhimiya 1978, *20*, 136-41; *Soviet Radiochem.* (*Engl. Transl.*) 1978, *20*, 109-13.

VARIABLES:

Room temperature

PREPARED BY:

T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrF_3 in acidic nitrosyl fluoride at room temperature was reported to be

0.06 mass %

The molality calculated by the compiler is

3.0×10^{-3} mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method employed. The solute-solvent mixture was placed in a Teflon vessel and mechanically agitated at room temperature for 10 h. The reaction mixture was allowed to settle for 24 h and the supernatant saturated solution was analyzed for the Pr content. An aliquot was evaporated to dryness under vacuum at 100-150°C, and the dry residue dissolved and analyzed (the method of analysis not specified).

Presumably, the solid phase is anhydrous PrF_3 (compiler).

SOURCE AND PURITY OF MATERIALS:

PrF_3 was at least 99% pure.

NOF.3HF prepared by saturation of liquid HF with NOF, and was distilled twice at 95°C before use. The melting point of acidic nitrosyl fluoride was 3.8°C.

ESTIMATED ERROR:

Nothing specified.

REFERENCES: