COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Praseodymium iodide; PrI_3; [13813-23-5] (2) 1,4-Dioxane; $C_4H_8O_2$; [123-91-1]	Kirmse, E.M.; Zwietasch, K.J.; Tirschmann, J.; Oelsner, L.; Niedergeases, U. Z. Chem. 1968, 8, 472-3. Kirmse, E.M. Th. II Vses. Konf. po Teor. Rastvorov. 1971, 200-6.

VARIABLES:	PREPARED BY:
Room temperature: T/K around 298	T. Mioduski

EXPERIMENTAL VALUES:

The solubility of PrI_3 in p-dioxane at about $25^{\circ}C$ was given as

2.7 mass %

The corresponding molality calculated by the compiler is

0.053 mol kg^{-1}

The nature of the solid phase was not specified.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The solute-solvent mixtures were isothermally agitated at $25^{\circ}C$ or at room temperature. Authors state that the difference found for the solubility was within experimental error limits. Pr was determined by complexometric titration. No other details given.	The anhydrous salt was prepared by the method of Taylor and Carter (1). No other information given.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES: 1. Taylor, M.D.; Carter, C.P. J. Inorg. Nucl. Chem. 1962, 24, 387.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Praseodymium iodide; PrI_3; [13813-23-5] (2) Alkyl amines	Kirmse, E.M. *Tr. II Vses. Konf. po Teor. Rastvorov* 1971, 200-6.
VARIABLES: T/K = 298	**PREPARED BY:** T. Mioduski and M. Salomon

EXPERIMENTAL VALUES:

solvent			PrI_3 solubility[a]	
			mass %	mol kg^{-1}
1-propanamine;	n-C_3H_9N;	[107-10-8]	15.5	0.352
2-propanamine;	iso-C_3H_9N;	[75-31-0]	5.3	0.107
1-butanamine;	n-$C_4H_{11}N$;	[109-73-9]	19.6	0.467
2-butanamine;	sec-$C_4H_{11}N$;	[13952-84-6]	2.5	0.049

[a]Molalities calculated by the compilers.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Experimental details not given, but were probably similar to previous works of the author which are compiled throughout this volume. Nature of solid phases not specified.	Nothing specified, but based on previous work by the author the anhydrous salt was probably prepared by the method of Taylor and Carter (1).

	ESTIMATED ERROR:
	Nothing specified.

	REFERENCES:
	1. Taylor, M.D.; Carter, C.P. *J. Inorg. Nucl. Chem.* 1962, 24, 387.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Praseodymium iodide ; PrI_3; [13813-23-5] (2) N,N-Dimethylformamide; C_3H_7NO; [68-12-2]	Moeller, T.; Galasyn, V. J. Inorg. Nucl. Chem. 1962, 12, 259-65.
VARIABLES: T/K = 298.15	PREPARED BY: M. Salomon

EXPERIMENTAL VALUES:

The solubility of PrI_3 in $HCON(CH_3)_2$ at 25°C was reported as

$$735.8 \text{ g dm}^{-3}$$

and as

$$0.6650 \text{ mol dm}^{-3}$$

The solid phase is the solvate $PrI_3 \cdot 8HCON(CH_3)_2$. The melting point (sealed tube method) of this solvate given as 90.5 - 92.5°C.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Authors state that solubilities were determined by analysis of aliquots after equilibration at 25 ± 0.025°C, and that techniques were generally similar to those described in (1).

The rare earth content was determined by complexometric titration with EDTA at 60°C. Iodide was determined by the Volhard method, and carbon, hydrogen, and nitrogen by usual microanalytical techniques.

REFERENCES:

1. Moeller, T.; Cullen, G.W. J. Inorg. Nucl. Chem. 1959, 10, 148.

2. Watt, G.W.; Gentile, P.S.; Helvenston, E. P. J. Am. Chem. Soc. 1955, 77, 2752.

3. Biltz, H.; Biltz, W. Laboratory Methods of Inorganic Chemistry (2nd Edition). John Wiley. N.Y. 1928.

4. Leader, G.R.; Gormley, J.F. J. Am. Chem. Soc. 1951, 73, 5731.

5. Thomas, A.B.; Rochow, E.G. J. Am. Chem. Soc. 1957, 79, 1843.

SOURCE AND PURITY OF MATERIALS:
The initial material was the rare earth oxide of 99.9+% purity. Iodides were prepd by two methods. 1. Acetyl iodide method (2) where the hydrated acetate is treated with acetyl iodide in benzene. Acetyl iodide prepd as in (3). 2. The iodide was prepd by metathesis by reaction of the hydrated $PrCl_3$ with KI in DMF followed by addition of benzene and distillation of the benzene-water azeotrope.

For both preparations the solvate $PrI_3 \cdot 8DMF$ was recrystallized from DMF by addition of ether.

The solvent, DMF, was prepared as in (4,5), and its electrolytic conductance was $\geq 3.7 \times 10^{-7}$ S cm^{-1} at 25°C.

ESTIMATED ERROR:

Soly: precision around ± 0.1% (compiler).

Temp: precision ± 0.025 K (authors).