COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cerium bromide; $CeBr_3$; [14457-87-5] (2) Tetrahydrofuran; C_4H_8O; [109-99-9]	Rossmanith, K. *Monatsh. Chem.* 1966, 97, 1357-64.
VARIABLES:	PREPARED BY:
Room Temperature: T/K = 294-296	T. Mioduski

EXPERIMENTAL VALUES:

The solubility of $CeBr_3$ in tetrahydrofuran at 21-23°C was reported to be 0.60 g per 100 ml of solution (0.016 mol dm^{-3}, compiler).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Isothermal method employed. The solution was equilibrated in an extractor with agitation for 60-80 hours at room temperature. Cerium 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 $CeBr_3 \cdot 4C_4H_8O$.	Sources and purities of initial materials not specified. $CeBr_3$ 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:	ORIGINAL MEASUREMENTS:
(1) Cerium bromide; $CeBr_3$; [14457-87-5] (2) Pyridine; C_5H_5N; [110-86-1]	Müller, R. *Z. Elektrochem.* 1932, *38*, 227-32.
VARIABLES: Temperature	**PREPARED BY:** M. Salomon and T. Mioduski

EXPERIMENTAL VALUES:

solubilities from run number 2[a]

t/°C	mass %	mol %	mol kg^{-1}	nature of the solid phase
-5	0.436	0.0909	0.01153	$CeBr_3.3C_5H_5N$
0	0.907	0.149	0.02410	"
4	1.034	0.216	0.02751	$2CeBr_3.3C_5H_5N$
8	1.213	0.255	0.03233	$CeBr_3.2C_5H_5N$
12	2.138	0.4523	0.05752	"
22	2.615	0.5551	0.07070	$CeBr_3.C_5H_5N$
28	1.414	0.312	0.03776	"
35	0.801	0.167	0.02126	$3CeBr_3.2C_5H_5N$
50	0.719	0.1502	0.01907	"
70	0.692	0.1456	0.01835	"

[a]Molalities calculated by compilers, and mol % calculated by the author (see COMMENTS on next page).

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method used. Solvent and excess solid were equilibrated in glass tubes for 48 h with constant agitation. The saturated solutions were separated from the solid phases by rapid filtration using a heated or cooled filter apparatus. The filtrates were collected in weighing bottles, and the solid phases were also placed in weighing bottles after drying by suction. Cerium in both the filtrates and solid phases was determined gravimetrically by conversion to the oxalate and ignition to CeO_2.

Two separate experimental runs were carried out.

SOURCE AND PURITY OF MATERIALS:

Sources and purities of inorganic materials not specified. Anhydrous $CeBr_3$ prepared by dissolving metallic Ce in sulfuric acid followed by reduction of $Ce_2(SO_4)_3$ with H_2S and high temperature reaction with HBr.

Pyridine (Kahlbaum) was carefully dehydrated with fused KOH and fractionated.

ESTIMATED ERROR:

Soly: Average reproducibility about ± 0.5% (compilers).

Temp: nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cerium bromide; $CeBr_3$; [14457-87-5]	Müller, R.
(2) Pyridine; C_5H_5N; [110-86-1]	Z. *Elektrochem.* 1932, *38*, 227-32.

EXPERIMENTAL VALUES: continued...

	solubilities from run number 1[a]			
t/°C	mass %	mol %	mol kg^{-1}	nature of the solid phase
-5	0.437	0.0912	0.01156	$CeBr_3.3C_5H_5N$
-2	0.713	0.1491	0.01891	"
0	0.907	0.1944	0.02410	"
3	1.33	0.281	0.0355	$CeBr_3.3C_5H_5N + 2CeBr_3.3C_5H_5N$
4	1.02	0.214	0.0271	$2CeBr_3.3C_5H_5N$
5	0.768	0.1606	0.02038	$2CeBr_3.3C_5H_5N + CeBr_3.2C_5H_5N$
8	1.218	0.255	0.03246	$CeBr_3.2C_5H_5N$
10	1.63	0.3451	0.0436	"
12	2.15	0.4562	0.0578	"
15	2.91	0.6195	0.0789	"
18	3.53	0.7552	0.0963	$CeBr_3.2C_5H_5N + CeBr_3.C_5H_5N$
22	2.613	0.555	0.07064	$CeBr_3.C_5H_5N$
25	2.12	0.4485	0.0570	"
28	1.403	0.309	0.03746	"
30	0.821	0.1719	0.02179	$CeBr_3.C_5H_5N + 3CeBr_3.2C_5H_5N$
35	0.802	0.1678	0.02129	$3CeBr_3.2C_5H_5N$
40	0.791	0.165	0.02099	"
50	0.753[b]	0.1576	0.01997	"
60	0.721	0.1503	0.01912	"
70	0.691	0.145	0.01832	"
80	0.653	0.136	0.0173	"

[a] Molalities calculated by the compilers.

[b] Source publication gives 0.453 mass % units which is probably a typographical error. The value probably should be 0.753 mass % units which is consistent with the mol % value calculated by the author.

COMMENTS AND/OR ADDITIONAL DATA:

Since the experimental solubilities are those reported in mass % units, the compilers used these data to calculate the molalities. The author's calculations for mol % differ by around ± 0.5 % from those calculated by the compilers using 1977 IUPAC recommended atomic masses. The compilers' calculations for mol % units are not given in any of the above tables.