COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium nitrate; $CsNO_3$; [7789-18-6] (2) Cesium iodate; $CsIO_3$; [13454-81-4] (3) Water; H_2O; [7732-18-5]	Vinogradov, E.E.; Karataeva, I.M. *Zh. Neorg. Khim.* 1976, *21*, 1664-6; *Russ. J. Inorg. Chem.* (*Engl. Transl.*) 1976, *21*, 910-1.
VARIABLES: Composition at 323 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

$CsIO_3$ mass %	$CsIO_3$ mol % (compiler)	$CsNO_3$ mass %	$CsNO_3$ mol % (compiler)	Nature of the solid phase[a]
5.07[b]	0.312	-	-	A
1.95	0.136	15.56	1.711	"
1.74	0.124	17.97	2.024	"
1.38	0.110	28.09	3.547	"
31.42	14.18	63.30	45.11	"
1.02	0.0927	38.19	5.483	A+B
1.02	0.0929	38.34	5.516	"
1.02	0.0937	38.89	5.639	"
1.04	0.0948	38.33	5.515	"
1.02	0.0934	38.70	5.596	"
0.98	0.0906	39.39	5.749	"
0.99	0.0900	38.22	5.487	"
0.23	0.0209	39.01	5.601	B
-	-	39.49	5.689	"

[a] A = $CsIO_3$; B = $CsNO_3$.

[b] For the binary system the compiler computes the following:

soly of $CsIO_3$ = 0.174 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The compiler assumes that the isothermal method was used. The ternary $CsIO_3$-$CsNO_3$-H_2O system was studied by the method described in ref 1.	The compiler assumes that chemically pure grade cesium iodate was used as in ref (1).
COMMENTS AND/OR ADDITIONAL DATA: The phase diagram is given below (based on mass % units).	ESTIMATED ERROR: Nothing specified.
	REFERENCES: 1. Karataeva, I.M.; Vinogradov, E.E. *Zh. Neorg. Khim.* 1974, *19*, 3156.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium iodate; $CsIO_3$; [13454-81-4] (2) Aluminum iodate; $Al(IO_3)_3$; [15123-75-8] (3) Water; H_2O; [7732-18-5]	Shklovskaya, R.M.; Arkhipov, S.M.; Kidyarov, B.I.; Poleva, G.B. *Zh. Neorg. Khim.* 1982, *27*, 1610-1; *Russ. J. Inorg. Chem. (Engl. Transl.)* 1982, *27*, 910-1.
VARIABLES: Composition at 298 K	PREPARED BY: Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions at 25°C

$CsIO_3$ mass %	$CsIO_3$ mol % (compiler)	$Al(IO_3)_3$ mass %	$Al(IO_3)_3$ mol % (compiler)	Nature of the solid phase[a]
2.61[b]	0.157	-	-	A
2.24	0.135	0.82	0.028	"
2.19	0.133	1.68	0.0570	"
2.06	0.126	2.33	0.0794	"
1.99	0.123	3.31	0.114	"
1.85	0.115	4.44	0.154	"
1.57	0.0977	4.58	0.159	A+B
1.29	0.0803	4.90	0.170	B
0.85	0.053	5.07	0.176	"
0.40	0.025	5.61	0.194	"
-	-	5.7 [b]	0.197	"

[a] A = $CsIO_3$; B = $Al(IO_3)_3.6H_2O$

[b] For binary systems the compiler computes the following:

soly of $CsIO_3$ = 0.0871 mol kg^{-1}

soly of $Al(IO_3)_3$ = 0.11 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The isothermal method was used. Equilibrium was reached in 15-20 days. The iodate ion concentration in the liquid phase was determined by iodometric titration. The aluminum was determined complexometrically with Trilon(disodium salt of EDTA) and spectrographically. The cesium content was found by difference. The solid phases were identified by the method of residues and checked by X-ray diffraction.	Aluminum iodate hexahydrate was synthesized from iodic acid and aluminum hydroxide. "Special purity" grade cesium iodate was used.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium iodate; $CsIO_3$; [13434-81-4] (2) Hafnium iodate; $Hf(IO_3)_4$; [19630-06-9] (3) Water; H_2O; [7732-18-5]	Shklovskaya, R.M.; Arkhipov, S.M.; Kidyarov, B.I.; Poleva, G.V.; Vdovkina, T.E. *Zh. Neorg. Khim.* 1984, 29, 1346-8; *Russ. J. Inorg. Chem. (Engl. Transl.)* 1984, 29, 773-4.
VARIABLES: T/K = 298.2 Composition	PREPARED BY: Mark Salomon

EXPERIMENTAL VALUES: The $CsIO_3$ - $Hf(IO_3)_4$ - H_2O system at 25.0°C

Composition of saturated solutions[a]

$CsIO_3$		$Hf(IO_3)_4$		
mass %	mol %	mass %	mol %	Nature of the solid phase
-	-	0.00037	7.59×10^{-6}	$Hf(IO_3)_4$
0.32	0.0188	0.000059	1.21×10^{-6}	solid solution based on $Hf(IO_3)_4$
0.60	0.0353	0.000057	1.18×10^{-6}	"
0.72	0.0424	0.000064	1.34×10^{-6}	"
1.04	0.0615	0.000076	1.57×10^{-6}	"
1.23	0.0728	0.000081	1.68×10^{-6}	"
1.58	0.0939	0.000087	1.81×10^{-6}	"
1.65	0.0981	0.000094	1.96×10^{-6}	"
1.95	0.1163	0.000099	2.07×10^{-6}	"
2.27	0.1358	0.00011	2.31×10^{-6}	"
2.43	0.1456	0.00013	2.73×10^{-6}	"
2.53[b]	0.1517	0.00015	3.15×10^{-5}	solid solution + $CsIO_3$
2.53[b]	0.1517	0.00015	3.15×10^{-6}	"
2.61	0.1566	-	-	$CsIO_3$

[a] Mol % values calculated by the compiler.

[b] Eutonic solution.

For binary systems, the compiler computes the following:
solubility of $CsIO_3$ = 0.0871 mol kg^{-1}
solubility of $Hf(IO_3)_4$ = 4.21×10^{-6} mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method used. Equilibrium required 25-30 days. Solid and liquid phases analyzed for Cs by emission spectrometry using solutions of Cs concentration between 0.1 - 100 $\mu g\,cm^{-3}$ in the presence of 2 % NaCl solution (added to suppress the ionization of Cs atoms).
Preliminary experiments established that Hf does not influence the intensity of the emission of Cs. The concentration of Cs was therefore determined by comparing samples of saturated solution previously buffered with 2 % NaCl solution with standard Cs solutions also buffered with 2 % NaCl solution.
For liquid phase samples, Hf was determined photometrically using Arsenazo III after reduction of IO_3 with hydroxylamine. For solid phase samples, Cs was analyzed as described above and iodate by iodometric titrn. The Hf content was determined by difference. Solid phase samples were identified by the method of residues and by X-ray diffraction. The maximum concentration of $CsIO_3$ in the solid solution is 5.8 %.

SOURCE AND PURITY OF MATERIALS:

"Highly pure" $CsIO_3$ was used. $Hf(IO_3)_4$ was prepared from aqueous HIO_3 and freshly precipitated hydrated hafnium oxide under conditions described previously (1). No other information given.

ESTIMATED ERROR:
Soly: uncertainty in analyses did not exceed 3-8 rel %.
Temp: precision given as ± 0.1 K.

REFERENCES:

1. Deabriges, J.; Rohmer, R. *Bull. Soc. Chim France* 1968, 521.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium iodate; $CsIO_3$; [13454-81-4] (2) Iodic acid; HIO_3; [7782-68-5] (3) Water; H_2O; [7732-18-5]	Tatarinov, V.A. *Uch. Zap. Yarosl. Pedagog. Inst.* 1973, *No. 120*, 71-3.
VARIABLES: Composition at 298 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

$CsIO_3$ mass %	$CsIO_3$ mol % (compiler)	HIO_3 mass %	HIO_3 mol % (compiler)	Nature of the solid phase[a]
2.67[b]	0.160	-	-	A
2.65	0.160	0.61	0.064	A+C
1.12	0.0683	3.31	0.353	C
0.62	0.048	25.91	3.484	"
0.25	0.036	66.33	16.89	"
0.17	0.030	74.75	23.38	C+B
-	-	75.25[b]	23.74	B

[a] A = $CsIO_3$; B = HIO_3; C = $CsIO_3.HIO_3$

[b] For binary systems the compiler computes the following:

soly of $CsIO_3$ = 0.0891 mol kg^{-1}

soly of HIO_3 = 17.28 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The isothermal method was used. Equilibrium between the liquid and solid phases was established in 24 hours.
The cesium iodate content in the samples was determined iodometrically, and HIO_3 determined by titration with base.

SOURCE AND PURITY OF MATERIALS:

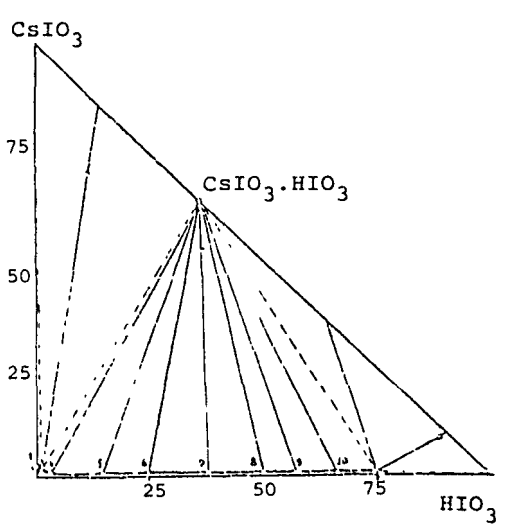
Cesium iodate was prepared from iodic acid and cesium carbonate, and the product was recrystallized.

ESTIMATED ERROR:

Nothing specified.

COMMENTS AND/OR ADDITIONAL DATA

The phase diagram is given below (based on mass % units).



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium iodate; $CsIO_3$; [13454-81-4] (2) N,N-Dimethylformamide; C_3H_7NO; [68-12-2] (3) Water; H_2O; [7732-18-5]	Miyamoto, H.; Hasegawa, T.; Sano, H. *J. Solution Chem.* in press.
VARIABLES: Solvent Composition Temperature	PREPARED BY: M. Salomon

EXPERIMENTAL VALUES:

t/°C = 20		t/°C = 25	
mass % dimethylformamide	$CsIO_3$/mol dm^{-3}	mass % dimethylformamide	$CsIO_3$/mol dm^{-3}
0	0.0747	0	0.0852
4.79	0.0570	5.12	0.0670
9.47	0.0458	9.48	0.0536
20.84	0.0231	20.09	0.0289
30.22	0.0132	29.71	0.0162
41.99	0.0054	40.02	0.0077

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Same as in reference (1).

SOURCE AND PURITY OF MATERIALS:

Extra pure grade Cs_2CO_3 and guaranteed grade HIO_3 used as received. $CsIO_3$ pptd by addn of excess HIO_3 sln to aq Cs_2CO_3 sln while heating. After stirring for 5 h, the sln was allowed to settle for 1 day, and the ppt washed with cold water until the dried salt produced a constant soly. The salt was stored in the dark.

Guaranteed grade dimethylformamide (Wako) was stored over BaO for two days, and then distilled three times under reduced pressure.

Doubly distilled water had an electrolytic conductance of 9.8×10^{-7} S cm^{-1}.

ESTIMATED ERROR:

Soly: standard deviation between 0.0002 and 0.001.

Temp: not stated.

REFERENCES:

1. Miyamoto, H.; Shimura, H.; Sasaki, K. *J. Solution Chem.* 1985, *14*, 485.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium iodate; $CsIO_3$; [13454-81-4]	Miyamoto, H.; Hasegawa, T.; Sano, H.
(2) N,N-Dimethylformamide; C_3H_7NO; [68-12-2]	*J. Solution Chem.* in press.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

t/°C = 30

mass % dimethylformamide	$CsIO_3$/mol dm^{-3}
0	0.0990
5.53	0.0750
11.49	0.0563
19.81	0.0341
29.79	0.0190
40.33	0.0086

For the binary $CsIO_3$-H_2O system, measured densities of saturated solutions permits conversions from mol dm^{-3} to mol kg^{-1} and mole fraction units.

t/°C	density/g cm^{-3}	c/mol dm^{-3}	m/mol kg^{-1}	mole fraction
20	1.019	0.0747	0.0750	0.00135
25	1.020	0.0852	0.0857	0.00154
30	1.022	0.0990	0.0998	0.00180

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Cesium iodate; $CsIO_3$; [13454-81-4]	Miyamoto, H.; Hasegawa, T.; Sano, H.
(2) Dimethylsulfoxide ; C_2H_6OS; [67-88-5]	*J. Solution Chem.* in press.
(3) Water; H_2O; [7732-18-5]	
VARIABLES:	**PREPARED BY:**
Solvent composition	M. Salomon
Temperature	

EXPERIMENTAL VALUES:

$CsIO_3$ soly/mol dm^{-3}

mass % dimethylsulfoxide	t/° C =	20	25	30
0		0.0747	0.0852	0.0990
5.03		0.0580	0.0684	0.0806
10.02		0.0461	0.0550	0.0643
20.09		0.0270	0.0328	0.0378
30.01		0.0149	0.0182	0.0211
40.03		0.0076	0.0092	0.0106

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Same as in reference (1).

SOURCE AND PURITY OF MATERIALS:

Extra pure grade Cs_2CO_3 and guaranteed grade HIO_3 used as received. $CsIO_3$ pptd by addn of excess HIO_3 sln to aq Cs_2CO_3 sln while heating. After stirring for 5 h, the sln was allowed to settle for 1 day, and the ppt washed with cold water until the dried salt produced a constant soly. The salt was stored in the dark.

Guaranteed grade dimethyl sulfoxide (Wako) was distilled three times under reduced pressure.

Doubly distilled water had an electrolytic conductance of 9.8×10^{-7} S cm^{-1}.

ESTIMATED ERROR:

Soly: stnd deviation betweeen 0.0002 and 0.001

Temp: not stated.

REFERENCES:

1. Miyamoto, H.; Shimura, H.; Sasaki, K. *J. Solution Chem.* 1985, *14*, 485.