COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9]	Larson, W.D.; Renier, J.J.
(2) Nitric acid; HNO_3; [7697-37-2]	*J. Am. Chem. Soc.* 1952, *74*, 3184-5.
(3) Water; H_2O; [7732-18-5]	
VARIABLES:	**PREPARED BY:**
Concentration of HNO_3 at 298.15 K	Hiroshi Miyamoto and Mark Salomon

EXPERIMENTAL VALUES:

Concn of HNO_3		Soly of $RbIO_3$	Density
mol kg^{-1}	mol dm^{-3}	mol dm^{-3}	g cm^{-3}
0	0	0.0919	1.0160
0.05020	0.04977	0.1051	1.0216
0.1006	0.09941	0.1175	1.0250
0.1511	0.1490	0.1297	1.0290
0.2016	0.1985	0.1415	1.0337
0.2516	0.2473	0.1533	1.0385
0.2933	0.2878	0.1626	1.0414
0.4056	0.3984	0.1546	1.0472
0.5006	0.4908	0.1495	1.0506

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method. KNO_3 and excess $RbIO_3$ were placed in bottles either coated with paraffin wax or uncoated and rotated in a thermostat for at least 12 h. Results in coated or uncoated bottles were identical.

At least two independent experiments were carried out for each KNO_3 concn, and two or more samples for analysis were taken from each saturated solution.

Conventional volumetric analysis was used, and recrystallized KIO_3 was used as the primary standard. Duplicate analyses agreed to within about 1 part per 800 or 900.

Nature of the solid phase(s) not specified.

SOURCE AND PURITY OF MATERIALS:

$RbIO_3$ prepared by addition of excess HIO_3 to sln of Rb_2CO_3. The salt was washed by decantation 3 times with cold water, filtered and washed again. It was air-dried and stored over anhydrous $CaCl_2$. Analysis for IO_3 gave +99.9 % of theoretical. HIO_3 prepared from "AR" grade I_2O_5 and water. "C.p." grade HNO_3 was used.

ESTIMATED ERROR:

Soly: precision in iodate analyses about $\pm$ 0.1 % (compilers).

Temp: accuracy $\pm$ 0.05 K (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) Potassium nitrate; KNO_3; [7757-79-1] (3) Water; H_2O; [7732-18-5]	Larson, W.D.; Renier, J.J. *J. Am. Chem. Soc.* 1952, *74*, 3184-5.
VARIABLES:	**PREPARED BY:**
Concentration of KNO_3 at 298.15 K	Hiroshi Miyamoto and Mark Salomon

EXPERIMENTAL VALUES:

Concn of KNO_3	Solubility of $RbIO_3$		Density
mol kg^{-1}	mol dm^{-3}	10^3/mole fraction	g cm^{-3}
0	0.0919	1.665	1.0160
0.05001	0.0972	1.747	1.0196
0.1004	0.1018	1.851	1.0236
0.1511	0.1054	1.917	1.0285
0.2021	0.1070	1.949	1.0318
0.2547	0.1118	2.037	1.0370
0.2940	0.1143	2.084	1.0396
0.4069	0.1192	2.179	1.0475
0.5025	0.1220	2.235	1.0538

To determine the solubility at zero ionic strength, the authors used the Debye-Huckel expression for the difference in solubilities between two saturated solutions of differing ionic strength,

$$I_1^{\frac{1}{2}} I_2^{\frac{1}{2}} A^2 + (I_1^{\frac{1}{2}} + I_2^{\frac{1}{2}})A + 1 - B(I_1^{\frac{1}{2}} - I_2^{\frac{1}{2}})/\log(L_2/L_1)^{\frac{1}{2}} = 0$$

where I is the ionic strength, L is the solubility, and B = 0.509 at 25°C. Values for A were calculated using 14 pairs of L_2/L_1 values, and the authors report A = 0.674 ± 0.026. Using this value of A, the solubility at zero ionic strenth was given as

c_o = 0.06834 mol dm^{-3}, or x_o = (1.237 ± 0.004) x 10^{-3} mole fraction.

(w_o = 1.759 mass %, m_o = 0.06875 mol kg^{-1} : compilers)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method. KNO_3 and excess $RbIO_3$ were placed in bottles either coated with paraffin wax or uncoated and rotated in a thermostat for at least 12 h. Results in coated or uncoated bottles were identical. At least two independent experiments were carried out for each KNO_3 concentration, and two or more samples for analysis were taken from each saturated solution.
Conventional volumetric analysis was used, and recrystallized KIO_3 was used as the primary standard. Duplicate analyses agreed to within about 1 part per 800 or 900.
Nature of the solid phase(s) not specified.

SOURCE AND PURITY OF MATERIALS:

$RbIO_3$ prepared by addition of excess HIO_3 to sln of Rb_2CO_3. The salt was washed by decantation 3 times with cold water, filtered and washed again. It was air-dried and stored over anhydrous $CaCl_2$. Analysis for IO_3 gave +99.9 % of theoretical HIO_3 prepd from "AR" grade I_2O_5 and water. "C.p." grade KNO_3 dried at 150°C for several hours.

ESTIMATED ERROR:

Soly: precision in iodate analyses about ± 0.1 % (compilers).
Temp: accuracy ± 0.05 K (authors).

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) Rubidium hydroxide; RbOH; [1310-82-3] (3) Water; H_2O; [7732-18-5]	Lepeshkov, I.N.; Vinogradov, E.E.; Tarasova, G.N. *Zh. Neorg. Khim.* 1976, *21*, 1353-6; *Russ. J. Inorg. Chem. (Engl. Transl.)* 1976, *21*, 739-41.
VARIABLES:	**PREPARED BY:**
Composition at 298.2 K	Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

$RbIO_3$ mass %	$RbIO_3$ mol % (compiler)	RbOH mass %	RbOH mol % (compiler)	Nature of the solid phase[a]
2.39[b]	0.169	-	-	A
0.77	0.055	3.59	0.655	"
0.32	0.024	10.03	1.929	"
0.11	0.0092	20.93	4.452	"
0.06	0.0061	38.99	10.11	"
0.06	0.0072	51.55	15.77	"
0.09	0.014	66.34	25.78	A+B
0.05	0.0076	66.30	25.72	"
0.05	0.0076	66.21	25.65	"
-	-	66.78	26.11	B

[a] A = $RbIO_3$; B = $RbOH.2H_2O$

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

soly of $RbIO_3$ = 0.0940 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solubility in the $RbIO_3$-RbOH-H_2O system was studied by the isothermal method. Mixtures were stirred in a water thermostat. Equilibrium was reached in 3-4 days. The concentration of hydroxide ion was found by titration with 0.1 mol dm^{-3} HCl in the presence of Methyl Orange. The IO_3 content was detd by titration with sodium thiosulfate solution in the presence of sulfuric acid and KI.
Rubidium was determined gravimetrically as the tetraphenylborate. The composition of the solid phases was found by Schreinemakers' method of residues.

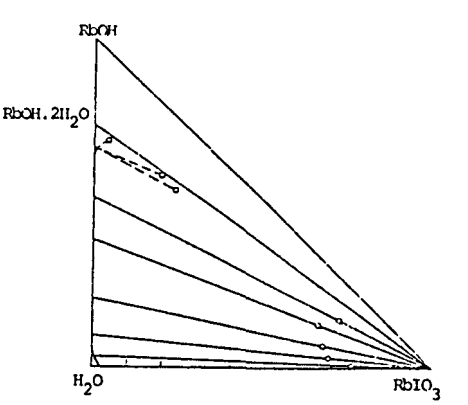
SOURCE AND PURITY OF MATERIALS:

"C.p." grade $RbIO_3$ was used. Commercial RbOH contains considerable amounts of Rb_2CO_3 impurity which cannot be removed by recryst from water. The hydroxide was purified by recryst in silver vessels in a stream of purified nitrogen as the temp was slowly increased to 250°C.

ESTIMATED ERROR:

Soly: nothing specified.
Temp: precision ± 0.1 K.

COMMENTS AND/OR ADDITIONAL DATA:



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) Cesium iodate; $CsIO_3$; [13454-81-4] (3) Water; H_2O; [7732-18-5]	Kirgintsev, A.N.; Shklovskaya, R.M.; Arkhipov, S.M. *Izv. Akad. Nauk SSSR, Ser. Khim.* 1971, 2631-4; *Bull. Acad. Sci. USSR, Div. Chem. Sci.* 1971, 2501-4.
VARIABLES: Composition at 298.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES:

Composition of saturated solutions

$RbIO_3$		$CsIO_3$	
mass %	mol %[a]	mass %	mol %[a]
2.31[b]	0.163	0.0	0.0
2.06	0.146	0.44	0.026
1.91	0.136	0.74	0.044
1.63	0.116	1.19	0.0715
1.41	0.100	1.44	0.0866
1.37	0.0974	1.51	0.0908
1.13	0.0803	1.72	0.103
0.87	0.062	1.78	0.107
0.58	0.041	2.10	0.126
0.28	0.020	2.26	0.136
0.0	0.0	2.50[b]	0.150

[a] Calculated by the compiler using IUPAC recommended atomic masses.

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

soly of $RbIO_3$ = 0.0908 mol kg^{-1}

soly of $CsIO_3$ = 0.0833 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal relief of supersaturation method. Super saturated solutions were prepared, and the solid and liquid phases separated. The mother liquor was equilibrated at 25°C for 24 hours.

The number of moles of the anion was determined by iodometric titration. Alkali metal contents were determined in the same sample by the method of flame photometry from three parallel analyses.

The composition of the solid phases was established by the Schreinemakers' method of residues. The authors did not give a phase diagram.

SOURCE AND PURITY OF MATERIALS:

"C.p." grade $RbIO_3$ and $CsIO_3$ were recrystallized from double distilled water.

ESTIMATED ERROR:

Soly: accuracy within ± 3.5 % (authors).
Temp: precision ± 0.1 K.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) Zinc iodate; $Zn(IO_3)_2$; [7790-37-6] (3) Water; H_2O; [7732-18-5]	Vinogradov, E.E.; Karataeva, I.M. *Zh. Neorg. Khim.* 1979, *24*, 2529-32; *Russ. J. Inorg. Chem.* (*Engl. Transl.*) 1979, *24*, 1406-8.
VARIABLES: Composition at 323 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions at 50°C

$RbIO_3$ mass %	$RbIO_3$ mol % (compiler)	$Zn(IO_3)_2$ mass %	$Zn(IO_3)_2$ mol % (compiler)	Nature of the solid phase[a]
4.39[b]	0.317	-	-	A
4.42	0.319	0.07	0.003	A+B
4.43	0.320	0.09	0.004	"
4.42	0.319	0.09	0.004	"
4.48	0.324	0.09	0.004	"
4.51	0.326	0.09	0.004	"
4.30	0.310	0.11	0.0050	"
4.56	0.330	0.09	0.004	"
4.52	0.327	0.11	0.0050	"
4.42	0.319	0.06	0.003	"
2.42	0.172	0.13	0.0058	B
0.11	0.0077	0.59	0.026	"
-	-	0.68[b]	0.030	"

[a] A = $RbIO_3$; B = $Zn(IO_3)_2.2H_2O$

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

soly of $RbIO_3$ = 0.176 mol kg^{-1}

soly of $Zn(IO_3)_2$ = 0.016 mol kg^{-1}

AUXILIARY INFORMATION

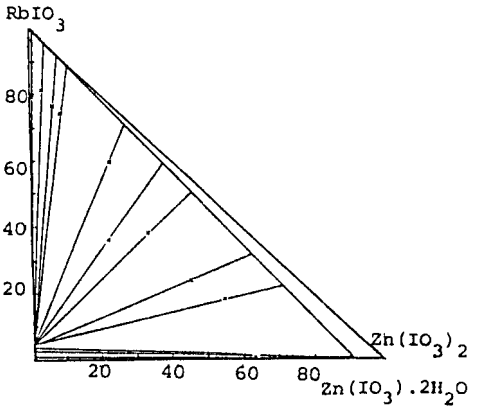
METHOD/APPARATUS/PROCEDURE:
Equilibrium in the system was reached after about a month.
Both liquid and solid phases were analyzed for all the ions by the methods described in refs 1 and 2. The solid phases were identified by X-ray diffraction and thermographically.

SOURCE AND PURITY OF MATERIALS:
"Chemically pure" grade rubidium iodate was used. Zinc iodate was prepared from zinc oxide and iodic acid.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:
1. Lepeshkov, I.N.; Vinogradov, E.E.; Karataeva, I.M. *Zh. Neorg. Khim.* 1977, *22*, 2277.
2. Karataeva, I.M.; Vinogradov, E.E. *Zh. Neorg. Khim.* 1974, *19*, 3156.

COMMENTS AND/OR ADDITIONAL DATA:
The phase diagram is given below (based on mass % units).



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) Aluminum iodate; $Al(IO_3)_3$; [15123-75-8] (3) Water; H_2O; [7732-18-5]	Vinogradov, E.E.; Tarasova, G.N. *Zh. Neorg. Khim.* 1978, *23*, 3161-4; *Russ. J. Inorg. Chem. (Engl. Transl.)* 1978, *23*, 1754-6.
VARIABLES: Composition at 298.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions at 25.0°C

$Al(IO_3)_3$ mass %	$Al(IO_3)_3$ mol % (compiler)	$RbIO_3$ mass %	$RbIO_3$ mol % (compiler)	Nature of the solid phase[a]
5.71[b]	0.197	-	-	A
4.49	0.155	1.03	0.0753	A+B
4.50	0.155	0.96	0.070	"
4.51	0.155	0.98	0.072	"
4.65	0.161	1.02	0.0746	"
4.63	0.160	0.98	0.072	"
3.97	0.136	1.13	0.0822	B
2.15	0.0729	1.68	0.121	"
-	-	2.39[b]	0.169	"

[a] A = $Al(IO_3)_3.6H_2O$; B = $RbIO_3$

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

soly of $RbIO_3$ = 0.0940 mol kg^{-1}

soly of $Al(IO_3)_3$ = 0.110 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Mixtures of $Al(IO_3)_3$, $RbIO_3$ and H_2O were stirred in a thermostat for 18-21 days. The liquid and solid phases were analyzed for IO_3^-, Rb^+ and Al^{3+}. The iodate content was determined by titrating with sodium thiosulfate solution in the presence of KI and H_2SO_4. Rubidium was determined gravimetrically as the tetraphenylborate, and aluminum determined by titrating with EDTA using Xylenol Orange as an indicator.
The composition of the solid phases were determined by Schreinemakers' method of residues.

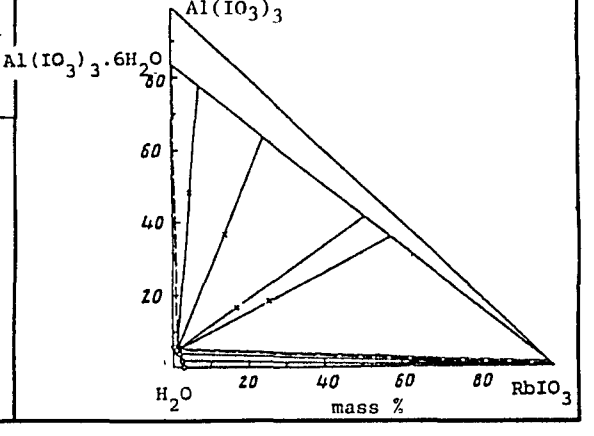
ESTIMATED ERROR:

Soly: nothing specified.
Temp: precision ± 0.1 K.

SOURCE AND PURITY OF MATERIALS:

"C.p." grade $RbIO_3$ used. $Al(IO_3)_3$ prepared at 80-90°C by stoichiometrically neutralizing a saturated solution of HIO_3 with freshly pptd $Al(OH)_3$. Found, mass %: Al 4.03; IO_3 78.7; H_2O 17.6. Calculated for $Al(IO_3)_3.6H_2O$, mass %: Al 4.09; IO_3 79.53; H_2O 16.38 (by difference).

COMMENTS AND/OR ADDITIONAL DATA:



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (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 $RbIO_3$ - $Hf(IO_3)_4$ - H_2O system at 25.0°C

Composition of saturated solutions[a]

$RbIO_3$		$Hf(IO_3)_4$		
mass %	mole %	mass %	mole %	Nature of the solid phase
----	----	0.00037	7.59×10^{-6}	$Hf(IO_3)_4$
0.27	0.0187	0.000074	1.52×10^{-6}	solid solution based on $Hf(IO_3)_4$
0.52	0.0362	0.000073	1.50×10^{-6}	"
0.74	0.0516	0.000073	1.51×10^{-6}	"
1.04	0.0727	0.000072	1.49×10^{-6}	"
1.28	0.0896	0.000072	1.49×10^{-6}	"
1.44	0.1099	0.000072	1.50×10^{-6}	"
1.64	0.1152	0.000072	1.50×10^{-6}	"
1.76	0.1238	0.000071	1.48×10^{-6}	"
1.99	0.1403	0.000071	1.48×10^{-6}	"
2.22	0.1568	0.000071	1.49×10^{-6}	"
2.31[b]	0.1633	0.000070	1.47×10^{-6}	solid solution + $RbIO_3$
2.31[b]	0.1633	0.000070	1.47×10^{-6}	"
2.36	0.1670	----	----	$RbIO_3$

[a] Mole % values calculated by the compiler.

[b] Eutonic solution.

For binary systems, the compiler computes the following:

solubility of $RbIO_3$ = 0.0928 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 Rb by emission spectrometry using solutions of Rb concentration between 0.1 - 100 μg cm^{-3} in the presence of 2 % NaCl solution (added to suppress the ionization of Rb atoms).
Preliminary experiments established that Hf does not influence the intensity of the emission of Rb. The concentration of Rb was therefore determined by comparing samples of saturated solution previously buffered with 2 % NaCl solution with standard Rb 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, Rb was analyzed as described above and iodate by iodometric titration. 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 $RbIO_3$ in the solid solution is 2.6 %.

SOURCE AND PURITY OF MATERIALS:
"Highly pure" $RbIO_3$ 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) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) Neodymium iodate; $Nd(IO_3)_3$; [14732-16-2] (3) Water; H_2O; [7732-18-5]	Tarasova, G.N.; Vinogradov, E.E.; Kudinov, I.B. *Zh. Neorg Khim.* 1981, *26*, 2841-7; *Russ. J. Inorg. Chem. (Engl. Transl.)* 1981, *26*, 1520-3.
VARIABLES: Composition at 298.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions at 25.0°C

Neodymium Iodate mass %	Neodymium Iodate mol % (compiler)	Rubidium Iodate mass %	Rubidium Iodate mol % (compiler)	Nature of the solid phase[a]
0.15[b]	0.0040	--	--	A
<0.01	0.0003	1.11	0.0776	A+B
<0.01	<0.0003	1.10	0.0769	"
<0.01	<0.0003	2.19	0.155	"
<0.01	<0.0003	2.45	0.173	"
<0.01	<0.0003	2.56	0.181	"
<0.01	<0.0003	2.48	0.176	"
<0.01	<0.0003	2.46	0.174	"
<0.01	<0.0003	2.18	0.154	"
--	--	2.40[b]	0.170	B

[a] A = $Nd(IO_3)_3.2H_2O$; B = $RbIO_3$

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

soly of $RbIO_3$ = 0.0944 mol kg^{-1}

soly of $Nd(IO_3)_3$ = 2.2×10^{-3} mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Mixtures of $Nd(IO_3)_3$, $RbIO_3$ and water were stirred in a water thermostat.
Equilibrium was reached in 30-35 days.
The liquid and solid phases were analyzed for IO_3^- and Nd^{3+} ions. The iodate ion concentration was determined by titration with sodium thiosulfate in the presence of sulfuric acid and KI. The neodymium content was determined by complexometric titration in the presence of hexamethylenetetramine with Methyl thymol blue indicator.
The composition of the solid phases was found by Schreinemakers' method of residues.

SOURCE AND PURITY OF MATERIALS:

Neodymium iodate was prep by reacting neodymium oxide and HIO_3 in stoichiometric proportions. The aqueous sln and precipitates were stirred continuously for 20 h at 80-90° C. Then the precipitate was transferred to a filter, washed repeatedly with hot water, and dried at 110-120°C. The authors state that the purity of the resulting neodymium iodate was checked by chemical analysis, but the result was not given in the original paper.
Chemically pure grade $RbIO_3$ was used.

ESTIMATED ERROR:

Soly: nothing specified.
Temp: precision ± 0.1 K.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) Iodic acid; HIO_3; [7782-68-5] (3) Water; H_2O; [7732-18-5]	Tatarinov, V.A. *Uch. Zap. Yarosl. Gos. Pedagog. Inst.* 1972, *No. 103*, 83-5.
VARIABLES: Composition at 323 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

$RbIO_3$ mass %	$RbIO_3$ mol % (compiler)	HIO_3 mass %	HIO_3 mol % (compiler)	Nature of the solid phase[a]
5.48[b]	0.400	-	-	A
5.05	0.371	1.36	0.148	"
3.84	0.289	4.95	0.551	A+C
3.82	0.287	4.98	0.555	"
2.55	0.191	5.80	0.643	C
0.76	0.062	16.80	2.043	"
0.71	0.072	35.00	5.277	"
0.61	0.086	56.00	11.66	"
0.82	0.18	74.48	23.55	"
0.81	0.17	74.50	23.57	C+B
-	-	76.53[b]	25.03	B

[a] A = $RbIO_3$; B = HIO_3; C = $RbIO_3.2HIO_3$

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

soly of $RbIO_3$ = 0.223 mol kg^{-1}

soly of HIO_3 = 18.54 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 rubidium iodate content in the samples was determined iodometrically, and HIO_3 determined by titration with base.

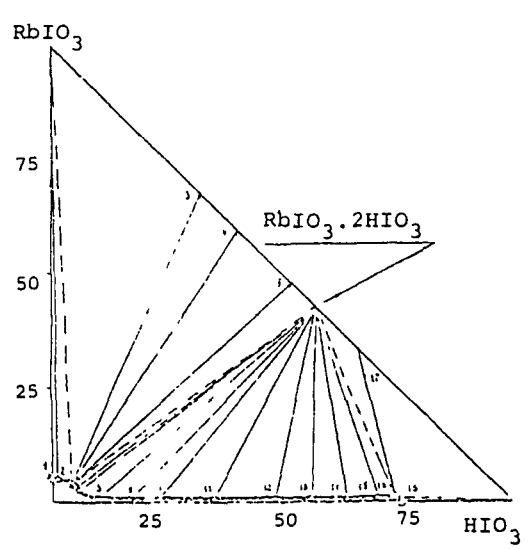
SOURCE AND PURITY OF MATERIALS:
Rubidium iodate was prepared from iodic acid and rubidium sulfate, and the product was recrystallized.
"C.p." grade HIO_3 was recrystallized.

ESTIMATED ERROR:

Nothing specified.

COMMENTS AND/OR ADDITIONAL DATA:

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



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9] (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:

Solubilities in the $RbIO_3$-H_2O system at 20°C, 25°C, 30°C

t/°C = 20		t/°C = 25	
mass % dimethylformamide	$RbIO_3$/mol dm^{-3}	mass % dimethylformamide	$RbIO_3$/mol dm^{-3}
0	0.0805	0	0.0937
4.79	0.0609	5.12	0.0703
10.05	0.0465	10.00	0.0554
19.75	0.0262	20.43	0.0311
30.22	0.0139	29.71	0.0172
41.99	0.0057	40.02	0.0079

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Same as in reference (1).	Extra pure grade Rb_2CO_3 and guaranteed grade HIO_3 used as received. $RbIO_3$ pptd by addn of excess HIO_3 sln to aq Rb_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: stnd 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) Rubidium iodate; $RbIO_3$; [13446-76-9]	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	$RbIO_3$/mol dm^{-3}
0	0.108
5.53	0.0817
9.81	0.0652
20.10	0.0356
29.79	0.0197
40.33	0.0093

For the binary $RbIO_3$-H_2O system, measured densities of saturated solutions permits conversion 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}[a]	χ[a]
20	1.014	0.0805	0.0811	0.00146
25	1.018	0.0937	0.0943	0.00170
30	1.020	0.108	0.109	0.00196

[a]Calculated by the compiler.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Rubidium iodate; $RbIO_3$; [13446-76-9]	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:

mass % dimethylsulfoxide	$RbIO_3$ soly/mol dm^{-3} t/°C = 20	25	30
0	0.0805	0.0937	0.108
5.03	0.0639	0.0751	0.0864
10.02	0.0505	0.0588	0.0688
20.09	0.0298	0.0355	0.0402
30.01	0.0163	0.0196	0.0225
40.03	0.0081	0.0095	0.0109

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Same as in reference (1).

SOURCE AND PURITY OF MATERIALS:

Extra pure grade Rb_2CO_3 and guaranteed grade HIO_3 used as received. $RbIO_3$ pptd by addn of excess HIO_3 sln to aq Rb_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 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) Rubidium iodate; $RbIO_3$; [13446-76-9] (2) 6,7,10,17,18,20,21-Octahydrodibenzo [b,k] [1,4,7,10,13,16] hexaoxacyclooctadecin (dibenzo-18-crown-6); $C_{20}H_{24}O_6$; [14187-32-7] (3) Methanol; CH_4O; [67-56-1]	Kolthoff, I.M.; Chantooni, M.K. *Anal. Chem.* 1980, *52*, 1039-49.
VARIABLES: T/K = 298	**PREPARED BY:** Hiroshi Miyamoto and Mark Salomon

EXPERIMENTAL VALUES:

The solubility product of $RBIO_3$ in methanol at 25°C is given as

$$2.7 \times 10^{-9} \text{ mol}^2 \text{ dm}^{-6}$$

COMMENTS AND/OR ADDITIONAL DATA:

The formation constant for RbL^+ (L = crown ether) was also determined.

The authors reported

$$\log\{K_f(RbL^+)/\text{mol}^{-1} \text{ dm}^3\} = 4.23$$

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
A Markson No. 1002 K^+ specific ion electrode was used to measure Rb^+ activity after conditioning the electrode by soaking in 0.01 mol dm^{-3} $RbClO_4$ solution for 3-4 days. The electrode response to a_{Rb^+} was "practically" Nernstian.	Methanol (Fisher "Spectroquality" grade) distilled from Mg turnings. RbOH prepared by passing RbBr through a column of Dowex IX-8 resin in the hydroxide form. $RbIO_3$ prepared by neutralizing RbOH with HIO_3, recrystallized three times from water, and dried at 70°C.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES: