COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2] (2) Di sodium (I-4)-tetraoxomolybdate (2-) (disodium molybdate); Na_2MoO_4; [7631-95-0] (3) Water; H_2O; [7732-18-5]	Ricci, J.E.; Linke, W.F. *J. Am. Chem. Soc.* 1947, *69*, 1080-3.
VARIABLES: Composition at 298.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES:

Composition of saturated solutions

Na_2MoO_4 mass %	Na_2MoO_4 mol % (compiler)	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Density g cm^{-3}	Nature of the solid phase[a]
39.38	5.378	0.00	0.000	1.432	A
39.16	5.375	0.58	0.083	1.437	"
38.63	5.354	1.79	0.258	1.450	"
38.46	5.349	2.20	0.318	1.453	A+B
38.51	5.358	2.18	0.316	1.452	"
38.43	5.343	2.21	0.320	1.451	"
38.43	5.343	2.21	0.320	1.454	"
38.47	5.350	2.18	0.315	1.455	"
38.46	5.349	2.20	0.318	1.453	"
37.23	5.090	2.24	0.319	1.436	B
31.49	3.995	2.54	0.335	1.368	"
24.24	2.825	3.08	0.373	1.277	"
17.89	1.943	3.42	0.386	1.204	"
11.41	1.163	4.16	0.441	1.143	"
5.57	0.543	5.67	0.575	1.099	"
0.00	0.000	8.49[b]	0.838	1.074	"

[a] A = $Na_2MoO_4.2H_2O$; B = $NaIO_3.H_2O$

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

soly of $NaIO_3$ = 0.469 mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Solubilities determined isothermally by stirring complexes of known compositions in Pyrex tubes, and sampling the equilibrated solutions by means of calibrated pipets fitted with filtering tips. Total solids were determined by evaporation of an aliquot of saturated solution and drying to constant weight at 125°C.

The iodate content in the saturated solution was determined iodometrically. A large excess of acid (HCl) was necessary to obtain the correct end-point within the short titration time in the presence of the molybdate.

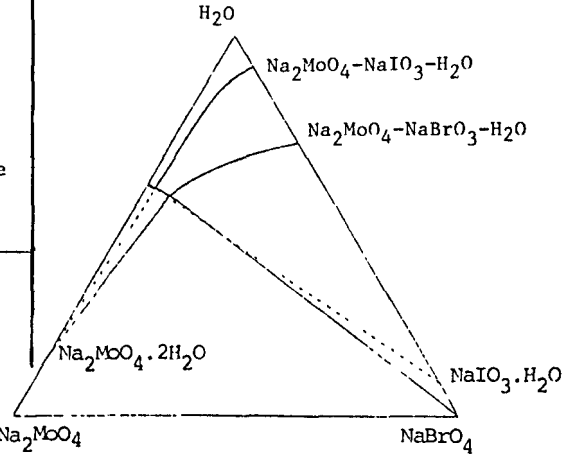
ESTIMATED ERROR:

Soly: the accuracy of titrations was within 0.1 %.
Temp: precision ± 0.04 K.

SOURCE AND PURITY OF MATERIALS:

C.p. grade sodium molybdate dihydrate completely dehydrated by heating to 180° C, and stored at 150°C. The purity of this anhydrous salt was found to be 100.0 %. C.p. grade sodium iodate was found to be pure within 1/1000.

COMMENTS AND/OR ADDITIONAL DATA:



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium carbonate; Na_2CO_3; [4917-19-8] (2) Sodium iodate; $NaIO_3$; [7681-55-2] (3) Water; H_2O; [7732-18-5]	Foote, H.W.; Vance, J.E. *Am. J. Sci.* 1933, 25, 499-502.
VARIABLES: Composition T/K = 273 - 323	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Na_2CO_3 mass %	Na_2CO_3 mol % (compiler)	Nature of the solid phase[a]
0	-	-	6.42	1.15	A
	0.81	0.078	6.30	1.14	A+C
	0.83	0.080	6.27	1.13	"
	2.42[b]	0.225	-	-	C
25	-	-	22.60	4.728	A
	0.52	0.059	22.44	4.715	"
	2.16	0.247	22.22	4.745	A+D
	2.17	0.248	22.22	4.746	"
	2.54	0.282	18.82	3.898	D
	8.66[b]	0.856	-	-	"
40	-	-	32.83	7.670	B
	0.50	0.063	32.67	7.667	"
	1.79	0.227	32.09	7.603	B+D
	1.75	0.222	32.00	7.570	"
	2.00	0.248	29.87	6.918	D
	11.71[b]	1.193	-	-	"

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sodium iodate, sodium carbonate and water were placed in glass stoppered bottles and rotated in a thermostat. Twenty-four hours were allowed for the attainment of equilibrium at which time samples of the solution were drawn off through glass wool filters for analysis.

Sodium iodate content was determined by adding excess KI, acidifying with sulfuric acid, and titrating the liberated iodine with thiosulfate solution. Sodium carbonate was detd in a second sample by titration with HCl using methyl orange indicator. In these carbonate titrations, a constant light source was used and the end point was compared with a standard made by saturating water containing a few drops of methyl orange with carbon dioxide.

The composition of the dry solid phase was determined by the method of Schreinemakers.

SOURCE AND PURITY OF MATERIALS:

The authors only state that sodium iodate and carbonate were purified by customary methods.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium carbonate; Na_2CO_3; [4917-19-8]	Foote, H.W.; Vance, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	Am. J. Sci. 1933, 25, 499-502.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Na_2CO_3 mass %	Na_2CO_3 mol % (compiler)	Nature of the solid phase[a]
50	-	-	32.16	7.457	B
	1.30	0.163	31.52	7.374	"
	2.42	0.307	31.31	7.411	B+D
	2.54	0.322	31.23	7.396	"
	3.34	0.401	25.44	5.701	D
	14.06	1.468	-	-	"

[a] A = $Na_2CO_3.10H_2O$; B = $Na_2CO_3.H_2O$; C = $NaIO_3.5H_2O$; D = $NaIO_3.H_2O$

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

soly of $NaIO_3$ = 0.125 mol kg^{-1} at 0°C

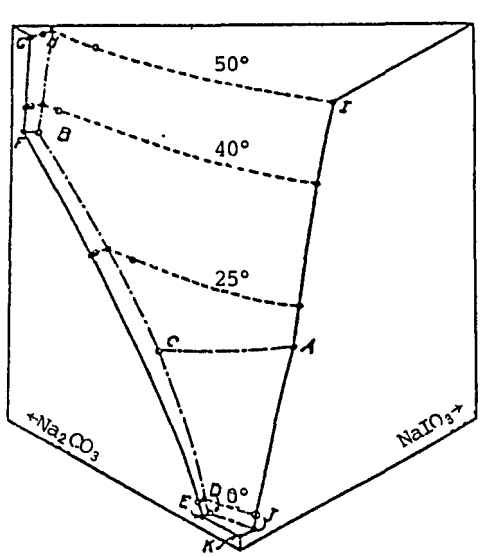
= 0.479 mol kg^{-1} at 25°C

= 0.6702 mol kg^{-1} at 40°C

= 0.8267 mol kg^{-1} at 50°C

COMMENTS AND/OR ADDITIONAL DATA:

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



System $NaIO_3$–Na_2CO_3–H_2O, showing the solubility isotherms at four temperatures, and the stability areas of the five solid phases. No double salt exists.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4] (2) Sodium iodate; $NaIO_3$; [7681-55-2] (3) Water; H_2O; [7732-18-5]	Foote, H.W.; Vance, J.E. *Am. J. Sci.* 1929, *18*, 375-82.
VARIABLES: Composition T/K = 273 - 308	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	$NaNO_3$ mass %	$NaNO_3$ mol % (compiler)	Nature of the solid phase[a]
0	-	-	42.13	13.37	A
	0.82	0.113	41.76	13.34	A+D
	0.82	0.112	41.71	13.32	"
	0.86	0.117	41.15	13.06	D
	1.00	0.131	37.53	11.44	"
	1.16	0.147	34.61	10.24	"
	1.31	0.163	32.57	9.438	"
	1.38	0.171	32.19	9.298	B+D
	1.31	0.163	32.45	9.391	"
	1.26	0.151	29.18	8.153	B
	1.06	0.117	21.42	5.526	"
	2.42[b]	0.225	-	-	"
8	-	-	43.99	14.27	A
	1.67	0.236	43.28	14.25	A+D
	1.67	0.236	43.21	14.21	"
	1.88	0.259	40.80	13.08	D
	1.96	0.266	39.54	12.50	C+D
	2.02	0.274	39.36	12.42	C
	2.27	0.285	32.23	9.418	"

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sodium iodate, sodium nitrate and water were placed in glass stoppered bottles and rotated in a thermostat. Samples of the solution were drawn off through glass wool filters. The iodate content was determined by adding KI to the solution, acidifying with sulfuric acid, and titrating the free iodine with sodium thiosulfate solution. The nitrate content was calculated from the iodate concentration and the total mass of salts in solution.
Water was found by difference. The solid phases were analyzed as wet residues after largely freeing them from water by pressing between filter papers. The composition of the dry residue was determined by Schreinemakers' method.

SOURCE AND PURITY OF MATERIALS:
Sodium iodate and nitrate used were c.p. products which were recrystallized once.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4]	Foote, H.W.; Vance, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*Am. J. Sci.* 1929, *18*, 375-82.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	$NaNO_3$ mass %	$NaNO_3$ mol % (compiler)	Nature of the solid phase[a]
8	2.25	0.279	31.03	8.948	B+C
	2.22	0.274	30.83	8.868	"
	3.90[b]	0.368	-	-	B
25	-	-	48.04	16.39	A
	1.09	0.161	47.39	16.29	"
	2.30	0.343	46.73	16.21	A+C
	2.25	0.335	46.65	16.16	"
	2.38	0.340	43.18	14.34	C
	2.55	0.350	39.88	12.76	"
	3.69	0.400	15.94	4.018	"
	8.66[b]	0.856	-	-	"
35	-	-	50.15	17.58	A
	1.58	0.241	49.25	17.47	"
	2.55	0.391	48.68	17.39	A+C
	2.55	0.391	48.68	17.39	"
	2.60	0.399	48.68	17.41	"
	2.66	0.400	46.99	16.45	C
	3.85	0.456	24.96	6.886	"
	10.57[b]	1.065	-	-	"

[a] A = $NaNO_3$; B = $NaIO_3.5H_2O$; C = $NaIO_3.H_2O$; D = $2NaIO_3.3NaNO_3.15H_2O$

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

soly of $NaIO_3$ = 0.125 mol kg^{-1} at 0°C; = 0.205 mol kg^{-1} at 8°C

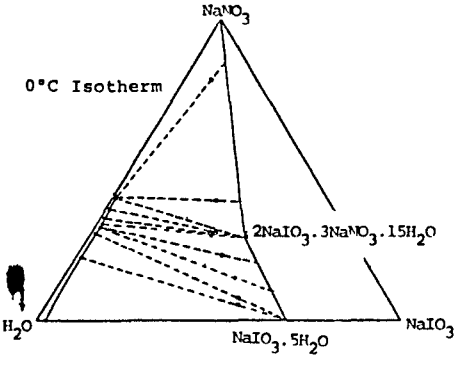
= 0.479 mol kg^{-1} at 25°C; = 0.5973 mol kg^{-1} at 35°C

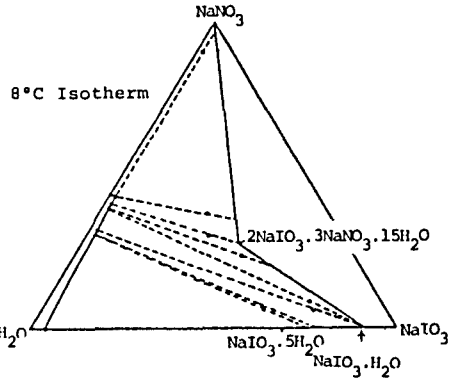
COMMENTS AND/OR ADDITIONAL DATA:

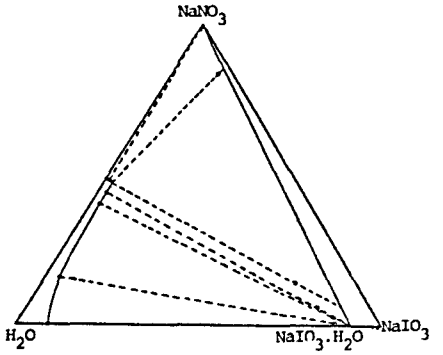
Isotherms based on mass % units are reproduced below on the following page.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4]	Foote, H.W.; Vance, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*Am. J. Sci.* 1929, *18*, 375-82.
(3) Water; H_2O; [7732-18-5]	

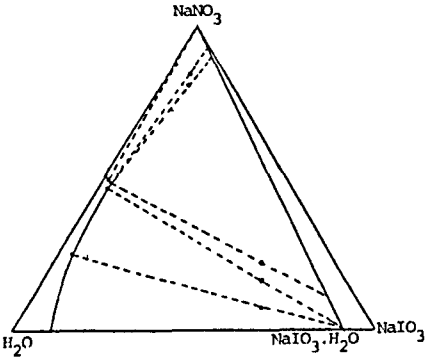
COMMENTS AND/OR ADDITIONAL DATA: (Continued)



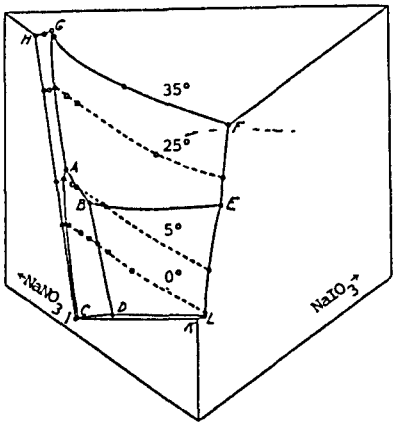




25°C Isotherm



35°C Isotherm



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4]	Cornec, M.E.; Spack, A.
(2) Sodium iodate; $NaIO_3$ [7681-55-2]	*Bull. Soc. Chim. Fr.* 1931, *49*, 582-94.
(3) Water; H_2O; [7732-18-5]	
VARIABLES:	**PREPARED BY:**
T/K = 273 to 373	Hiroshi Miyamoto
Composition	

EXPERIMENTAL VALUES: Composition of saturated solutions

	Sodium iodate			Sodium nitrate				
t/°C	mass %	$g_2/100\ g_3$	mol kg^{-1}	mass %	$g_1/100\ g_3$	mol kg^{-1}	Density g cm^{-3}	Nature of the solid phase[a]
0	0.53	0.92	0.046	42.0	72.9	8.58	1.357	A
	0.82	1.43	0.0723	41.9	73.0	8.59	1.360	A+S
	0.85	1.46	0.0738	40.8	69.9	8.22	1.351	S
	1.25	1.92	0.0970	33.5	51.3	6.04	1.286	"
	1.34	2.02	0.102	32.5	49.1	5.78	1.278	S+B
	1.25	1.81	0.0915	29.6	42.8	5.04	1.251	B
5	1.28	2.28	0.115	42.8	76.4	8.99	1.373	A+S
	2.02	3.15	0.159	34.1	53.4	6.28	1.300	B+C+S
10[m]	2.04						1.388	A+S
9.7[i]	1.97	3.57	0.180	43.5	79.6	9.37	1.387	A+C+S
10	1.98	3.64	0.184	43.6	80.1	9.42	1.388	A+C
15[i]	2.95	3.63	0.183	15.8	19.5	2.29	1.144	B+C
20	2.14	4.11	0.208	45.7	87.6	10.3	1.405	A+C
30	2.43	4.88	0.247	47.8	95.8	11.3	1.423	"
35	2.58						1.432	"
40	2.77	5.83	0.295	49.7	104.7	12.32	1.442	"
50	3.24						1.462	"

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
The details of procedure were not given.
The iodate content was determined by titration with thiosulfate solution.
The total solids were determined by evaporation of the solution at about 140°C.
The compiler assumes that the concentration of the nitrate was determined by difference.

SOURCE AND PURITY OF MATERIALS:
Sodium iodate used was purchased as a "pure chemical". The salt ws recrystallized four times. The product obtained was the monohydrate.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4]	Cornec, M.E.; Spack, A.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*Bull. Soc. Chim. Fr.* 1931, *49*, 582-94.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	Sodium iodate mass %	Sodium iodate $g_2/100\ g_3$	Sodium iodate mol kg^{-1}	Sodium nitrate mass %	Sodium nitrate $g_1/100\ g_3$	Sodium nitrate mol kg^{-1}	Density g cm^{-3}	Nature of the solid phase
41.5[i]	2.85	6.0	0.30	50.0	106.0	12.47	1.445	A+C+D
35[m]	2.85						1.435	A+D
50	2.90	6.39	0.323	51.7	114.1	13.42	1.458	"
60	2.97	6.87	0.347	53.8	124.4	14.64	1.474	"
70	3.16	7.68	0.388	55.7	135.3	15.92	1.491	"
80	3.35	8.60	0.435	57.7	148.2	17.44	1.509	"
90	3.60	9.79	0.495	59.6	162.3	19.10	1.528	"
100	3.94	11.40	0.5761	61.5	177.9	20.93	1.549	"
15	3.05	3.49	0.176	9.4	10.8	1.27	1.096	B
15	2.97	3.50	0.177	12.2	14.4	1.69	1.116	"
15	2.95	3.60	0.182	15.0	18.3	2.15	1.138	"
15[m]	3.04	3.89	0.197	18.8	24.1	2.84	1.170	"
15	2.85	3.62	0.183	18.4	23.3	2.74	1.164	C
15[m]	3.03	3.66	0.185	14.3	17.2	2.02	1.133	"
15[m]	3.48	3.97	0.201	8.8	10.1	1.19	1.096	"

[a] A = $NaNO_3$; B = $NaIO_3.5H_2O$; C = $NaIO_3.H_2O$; D = $NaIO_3$

S = double salt: $2NaIO_3.3NaNO_3.15H_2O$.

[m] Metastable

[i] Interpolated.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4]	Hill, A.E.; Donovan, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*J. Am. Chem. Soc.* 1931, 53, 934-41.
(3) Water; H_2O; [7732-18-5]	
VARIABLES:	**PREPARED BY:**
Composition	Hiroshi Miyamoto
T/K = 278.15 - 313.15	

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	$NaNO_3$ mass %	$NaNO_3$ mol % (compiler)	Density g cm^{-3}	Nature of the solid phase[a]
5	3.3[b]	0.310	0.00	0.00	1.028	A
	1.58	0.151	4.50	1.00	1.042	"
	1.55	0.175	22.59	5.927	1.182	"
	1.65	0.193	26.38	7.195	1.214	"
	1.75	0.210	28.44	7.932	1.230	"
	1.87	0.230	30.70	8.781	1.255	"
	1.78	0.220	31.38	9.030	1.262	"
	2.10	0.261	31.54	9.128	1.263	"
	2.07	0.260	32.48	9.493	1.275	"
	1.86	0.233	32.37	9.424	1.269	"
	1.94	0.248	34.34	10.23	1.291	A+E
	1.76	0.231	36.69	11.19	1.308	E
	1.60	0.213	38.38	11.91	1.324	"
	1.52	0.204	39.17	12.25	1.331	"
	1.41	0.192	40.40	12.80	1.336	"
	1.28	0.179	42.74	13.90	1.359	E+D
	1.01	0.141	42.94	13.95	1.359	D
	0.00	0.000	43.42	13.99	1.368	"

continued....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

For sodium iodate-sodium nitrate-water system, weighed quantities of these salts were treated with weighed amounts of water in Pyrex test-tubes. The tubes were slowly rotated in a water-thermostat at the desired temperature for about two weeks. After the slns were allowed to settle, samples were withdrawn into a calibrated pipet fitted with a small cotton filter. One sample was weighed and evaporated in a platinum dish to constant weight at 110°C. From this the water content of the saturated solution was determined.
To determine the $NaIO_3$ content, a second weighed sample was treated with KI and H_2SO_4, and titrated with $Na_2S_2O_3$. The sodium nitrate content was obtained by difference.

SOURCE AND PURITY OF MATERIALS:

"Good grade" sodium iodate and sodium nitrate were purified by recrystallization.

ESTIMATED ERROR:

Soly: the error for the analysis of iodate by iodometry was within 0.2 %.
Temp: precision ± 0.05 K.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4]	Hill, A.E.; Donovan, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*J. Am. Chem. Soc.* 1931, 53, 934-41.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

	$NaIO_3$		$NaNO_3$		Density	Nature of the
t/°C	mass %	mol % (compiler)	mass %	mol % (compiler)	g cm^{-3}	solid phase[a]
25	8.67[b]	0.857	0.00	0.00	1.077	B
	6.38	0.634	3.26	0.754	1.078	"
	5.99	0.596	3.91	0.906	1.078	"
	4.80	0.486	7.32	1.726	1.092	"
	4.30	0.444	10.10	2.429	1.109	"
	3.68	0.399	16.08	4.058	1.149	"
	3.41	0.381	19.47	5.060	1.171	"
	3.06	0.367	27.16	7.593	1.232	"
	2.84	0.361	32.67	9.661	1.276	"
	2.60	0.350	38.19	11.98	1.328	"
	2.31	0.337	45.12	15.34	1.392	"
	2.23	0.332	46.81	16.24	1.408	B+D
	1.09	0.161	47.44	16.32	1.396	D
	0.00	0.00	47.98	16.35	1.388	"
50	13.95[b]	1.454	0.00	0.00	-	B
	9.63	1.011	5.74	1.403	-	"
	6.22	0.700	17.03	4.460	-	"
	4.82	0.598	28.18	8.136	-	"
	3.92	0.544	39.15	12.65	-	"
	4.00	0.561	39.94	13.05	-	"
	3.84	0.548	41.53	13.80	-	B+C
	3.77	0.542	42.26	14.16	-	C
	3.64	0.531	43.46	14.75	-	"
	3.46	0.515	45.23	15.66	-	"
	3.09	0.481	49.11	17.80	-	"
	2.91	0.469	51.86	19.46	-	C+D
	1.58	0.252	52.55	19.49	-	D
	0.00	0.000	53.50	19.61	-	"

[a] A = $NaIO_3.5H_2O$; B = $NaIO_3.H_2O$; C = $NaIO_3$; D = $NaNO_3$;

E = $2NaIO_3.3NaNO_3.15H_2O$.

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

soly of $NaIO_3$ = 0.172 mol kg^{-1} at 5°C

= 0.480 mol kg^{-1} at 25°C

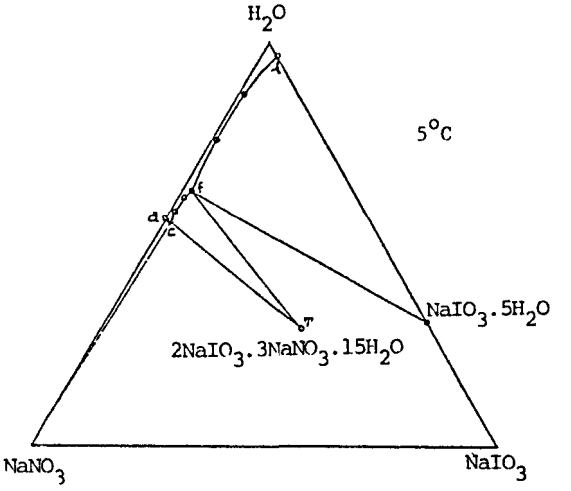
= 0.8192 mol kg^{-1} at 50°C

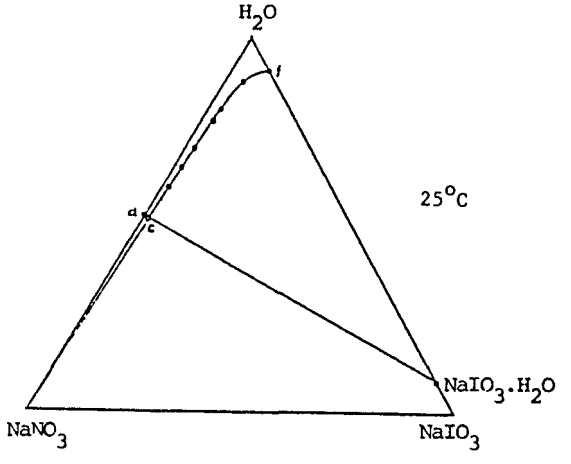
continued....

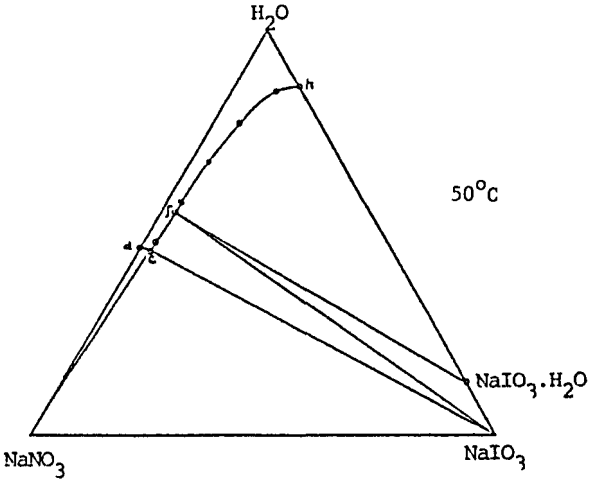
COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium nitrate; $NaNO_3$; [7631-99-4]	Hill, A.E.; Donovan, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*J. Am. Chem. Soc.* 1931, 53, 934-41.
(3) Water; H_2O; [7732-18-5]	

COMMENTS AND/OR ADDITIONAL DATA:

Isotherms based on mass % units are reproduced below.







COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium sulfate; Na_2SO_4; [7757-82-6]	Foote, H.W.; Vance, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*Am. J. Sci.* 1930, *19*, 203-13.
(3) Water; H_2O; [7732-18-5]	
VARIABLES: Composition; T/K = 298 - 323	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Na_2SO_4 mass %	Na_2SO_4 mol % (compiler)	Nature of the solid phase[b]
25	-	-	21.75	3.405	A
	2.20	0.252	21.30	3.402	"
	2.80	0.323	21.18	3.402	A+C
	2.78	0.320	21.18	3.401	"
	2.80	0.323	21.19	3.404	"
	3.17	0.353	17.52	2.716	C
	3.76	0.400	12.64	1.874	"
	8.66[c]	0.856	-	-	"
29.5	-	-	28.12	4.727	A
	1.62	0.198	27.72	4.730	A+E
	1.53	0.187	27.72	4.725	"
	1.52	0.184	26.85	4.530	E
	1.90	0.228	25.68	4.294	"
	2.70	0.325	25.17	4.225	C+E
	2.73	0.328	24.86	4.159	"
	9.47[c]	0.943	-	-	C
35	-	-	33.10	5.905	B
(A)	0.15	0.019	32.86	5.856	B+D
	0.15	0.019	32.91	5.868	"

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Sodium iodate, sodium sulfate and water were placed in glass stoppered bottles and the bottles rotated in a thermostat. Two weeks were allowed for the attainment of equilibrium except in the case of the solubility isotherm at 25°C and 50°C where a minimum of 48 hours were allowed.
Samples of the solution were drawn off through glass wool filters for analysis. The composition of the dry solid phases were determined by the method of Schreinemakers'. Sodium iodate in the liquid and solid phases was determined by adding potassium iodide to the samples, acidifying with sulfuric acid, and titrating the liberated iodine with thiosulfate solution. The sulfate content was calculated from the iodate concentration and the mass of total salts. Water was found by difference.

SOURCE AND PURITY OF MATERIALS:
The authors only stated that sodium iodate and sodium sulfate were purified by customary methods.

ESTIMATED ERROR:
Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium sulfate; Na_2SO_4; [7757-82-6]	Foote, H.W.; Vance, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*Am. J. Sci.* 1930, *19*, 203-13.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Na_2SO_4 mass %	Na_2SO_4 mol % (compiler)	Nature of the solid phase[b]
35 (A)	0.11	0.014	32.83	5.845	D
	0.16	0.020	32.18	5.688	"
	0.29	0.036	30.92	5.392	"
	0.57	0.070	29.63	5.105	"
	0.62	0.076	28.98	4.958	D+E
	0.80	0.098	28.77	4.921	"
	1.30	0.156	26.06	4.345	E
	2.34	0.276	23.62	3.878	"
	3.33	0.392	22.57	3.705	C+E
	3.59	0.415	20.70	3.338	C
	3.73	0.426	19.33	3.075	"
	4.47	0.493	15.30	2.350	"
	10.57[c]	1.065	-	-	"
35 (B)	-	-	33.10[a]	5.905	B
	0.15[a]	0.019	32.86	5.856	B+D
	0.15[a]	0.019	32.91	5.868	"
	0.10	0.013	32.82	5.842	D
	0.28	0.035	31.06	5.424	"
	0.30	0.037	30.35	5.257	"
	0.83	0.102	28.84	4.939	D+E
	0.90	0.110	28.50	4.864	"
	1.29	0.154	25.97	4.325	E
	2.39	0.282	23.79	3.916	"
	3.33[a]	0.392	22.57	3.705	C+E
	3.59[a]	0.415	20.70	3.338	C
	3.73[a]	0.426	19.33	3.075	"
	4.47[a]	0.493	15.30	2.350	"
	10.57[a,c]	1.065	-	-	"

[a] Data taken from 35(A) isotherm

50	-	-	31.76	5.574	B
	0.17	0.21	31.60	5.547	B+D
	0.13	0.016	31.70	5.569	"
	0.15	0.019	31.67	5.563	D
	0.28	0.035	30.02	5.178	"
	0.63	0.077	28.53	4.856	"
	0.98	0.119	27.56	4.658	D+E
	1.06	0.128	27.28	4.600	"
	1.25	0.149	25.93	4.315	E
	1.87	0.220	23.96	3.927	"
	2.75	0.323	22.85	3.737	"
	4.01	0.469	21.21	3.456	"
	5.29	0.619	19.97	3.258	C+E
	5.32	0.623	19.97	3.259	"
	14.06[c]	1.468	-	-	C

continued.....

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium sulfate; Na_2SO_4; [7757-82-6]	Foote, H.W.; Vance, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*Am. J. Sci.* 1930, *19*, 203-13.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

[b] A = $Na_2SO_4.10H_2O$; B = Na_2SO_4; C = $NaIO_3.H_2O$; D = $NaIO_3.4Na_2SO_4$; E = $NaIO_3.3Na_2SO_4$

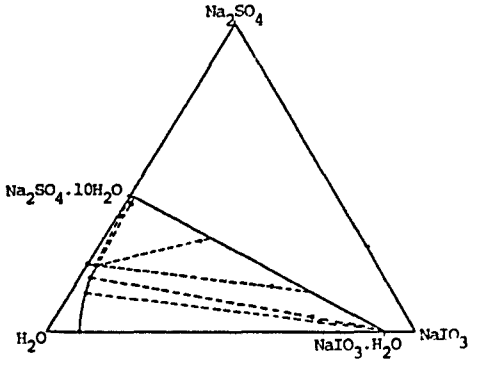
[c] For the binary system the compiler computes the following:

soly of $NaIO_3$ = 0.479 mol kg^{-1} at 25°C ; 0.529 mol kg^{-1} at 29.5°C

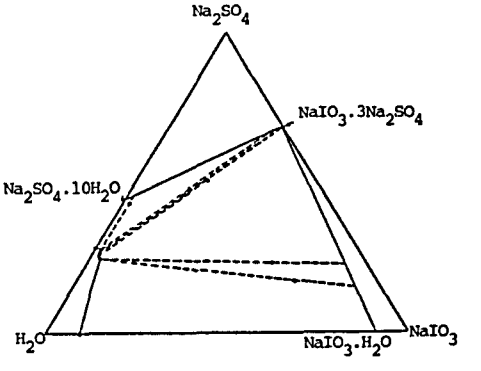
0.5973 mol kg^{-1} at 35°C; 0.8267 mol kg^{-1} at 50°C

COMMENTS AND/OR ADDITIONAL DATA:

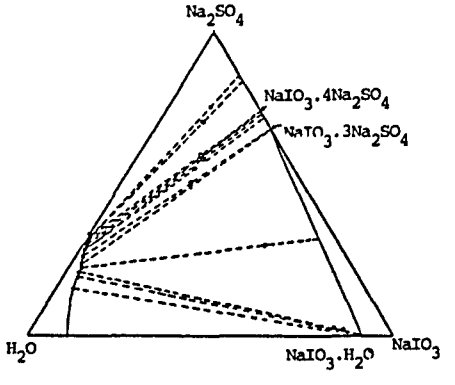
The solubility isotherms are reported below (based on mass % units)



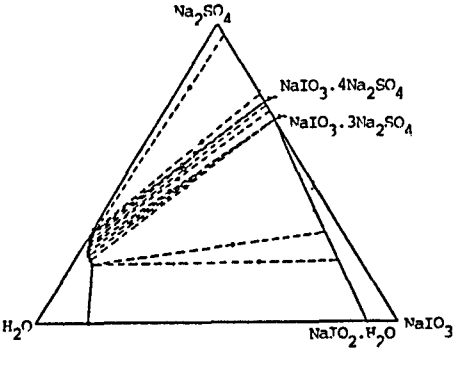
25°C Isotherm



29.5°C Isotherm



35°C Isotherm



50°C Isotherm

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5] (2) Sodium iodate; $NaIO_3$; [7681-55-2] (3) Water; H_2O; [7732-18-5]	Foote, H.W.; Vance, J.E. *Am. J. Sci.* 1929, *17*, 425-30.
VARIABLES: Composition at 273, 288, 298 and 308 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	NaCl mass %	NaCl mol % (compiler)	Nature of the solid phase[a]
0	-	-	26.34	9.928	A
	0.29	0.032	26.36	9.970	A+D
	0.37	0.041	26.28	9.942	"
	0.38	0.042	26.30	9.952	"
	0.54	0.059	24.16	8.995	D
	0.66	0.072	23.08	8.527	"
	0.73	0.079	22.62	8.332	"
	1.03	0.111	20.85	7.593	D+B
	1.03	0.111	20.88	7.606	"
	0.83	0.086	16.30	5.712	B
	2.42[b]	0.225	-	-	"
15	-	-	26.38	9.947	A
	0.97	0.109	26.14	9.943	A+D
	0.97	0.109	26.12	9.934	"
	0.97	0.109	26.30	10.02	"
	1.29	0.144	24.64	9.287	D
	1.68	0.185	23.14	8.650	C+D
	1.71	0.189	23.14	8.653	"
	1.75	0.190	20.73	7.601	C
	1.87	0.196	16.32	5.782	"

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Sodium iodate, sodium chloride and water were placed in glass stoppered bottles, and the bottles rotated in a thermostat for 24 hours. Samples of the solution were drawn off through glass wool filters. The iodate content was determined by addking KI to the solution, acidifying with sulfuric acid, and titrating the free iodine with sodium thiosulfate solution. The chloride content was calculated from the IO_3 concentration and the total weight of salt in solution. Water was found by difference.

The solid phases were analyzed as wet residues after largely freeing them from water by pressing between filter papers. The composition of the dry residue was then determined by Schreinemakers' method.

SOURCE AND PURITY OF MATERIALS:

The source of NaCl and $NaIO_3$ was not given in the original paper. The authors state that the salts were purified by usual methods, however, the details of purification were not reported.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium chloride; NaCl; [7647-14-5]	Foote, H.W.; Vance, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*Am. J. Sci.* 1929, *17*, 425-30.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	NaCl mass %	NaCl mol % (compiler)	solid phase[a]
15	2.34	0.233	9.46	3.193	B+C
	2.35	0.234	9.47	3.197	"
	2.53	0.247	6.60	2.184	B
	5.88[b]	0.566	-	-	"
25	-	-	26.50	10.00	A
	1.96	0.225	26.08	10.03	A+C
	1.99	0.226	25.93	9.960	"
	1.98	0.225	26.08	10.03	"
	8.66[b]	0.856	-	-	C
35	-	-	26.66	10.08	A
	1.70	0.193	26.20	10.05	"
	2.39	0.273	26.04	10.06	A+C
	2.40	0.274	26.00	10.04	"
	2.39	0.273	26.02	10.05	"
	2.41	0.275	26.07	10.07	"
	2.47	0.275	23.15	8.730	C
	2.57	0.282	21.24	7.891	"
	4.51	0.454	7.87	2.68	"
	10.57[b]	1.065	--	--	"

[a] A = NaCl; B = $NaIO_3.5H_2O$; C = $NaIO_3.H_2O$; D = $2NaIO_3.3NaCl.10H_2O$

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

soly of $NaIO_3$ = 0.125 mol kg^{-1} at 0°C

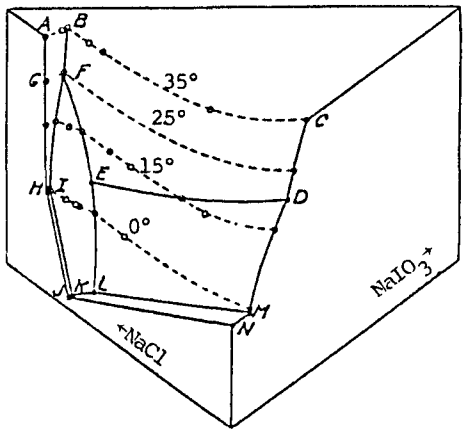
= 0.316 mol kg^{-1} at 15°C

= 0.479 mol kg^{-1} at 25°C

= 0.5973 mol kg^{-1} at 35°C

COMMENTS AND/OR ADDITIONAL DATA:

The solubility isotherms are reproduced below (based on mass % units).



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium bromide; NaBr; [7647-15-6] (2) Sodium iodate; $NaIO_3$; [7681-55-2] (3) Water; H_2O; [7732-18-5]	Ricci, J.E. *J. Am. Chem. Soc.* 1934, *56*, 290-5.
VARIABLES: Composition T/K = 278 - 323	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

	NaBr		$NaIO_3$			
t/°C	mass %	mol %	mass %	mol %	Density g cm^{-3}	Nature of the solid phase[a]
5	45.08	12.57	0.00	0.00	1.489	A
	45.04	12.56	0.076	0.011	1.491	A+S5
	45.00	12.54	0.075	0.011	1.492	"
	45.07	12.57	0.073	0.011	1.492	"
	45.04	12.56	0.075	0.011	1.492	"
	43.99	12.10	0.084	0.012	1.473	S5
	39.98	10.46	0.124	0.0169	1.415	"
	35.04	8.655	0.231	0.0297	1.352	"
	29.50	6.874	0.584	0.0708	1.287	"
	24.56	5.461	1.09	0.126	1.238	"
	23.53	5.186	1.27	0.146	1.229	S5+B
	23.49	5.176	1.28	0.147	1.230	"
	23.51	5.181	1.28	0.147	1.230	"
	22.95	5.027	1.25	0.142	1.225	B
	18.42	3.850	1.13	0.123	1.175	"
	14.13	2.832	1.09	0.114	1.132	"
	10.37	2.008	1.13	0.114	1.097	"
	4.97	0.920	1.44	0.139	1.052	"
	0.00	0.000	3.297	0.3094	1.027	"
	23.30	5.127	1.34	0.153	1.227	S5(m)
	21.71	4.723	1.78	0.201	1.215	S5+C(m)
	20.78	4.476	1.74	0.195	1.204	C(m)
	16.39	3.384	1.85	0.199	1.162	"

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Ternary complexes were stirred for 1-2 weeks at temperatures below 40°C, and for 2-4 days at higher temperatures (40-50°C). This length of time allowed for the attainment of equilibrium as determined in several cases by successive analysis of the solutions. Care had to be taken to seed each complex with the expected stable solid phase whenever possible, and to break up the caked hydrates which sometimes formed on mixing the salt with water in the preparation of the complexes. In one sample of the saturated solution, the iodate was determined by titration with standard thiosulfate solution. In another sample, the total solid was determined by evaporation of the solution at 100°C followed by one to two hours at 350°C. The concentration of the bromide was then determined by difference.

SOURCE AND PURITY OF MATERIALS:

The salts used were prepared by recrystallization of the best available c.p. material which, in the case of the bromide, usually contained from 0.5 to 1.0 % chloride.

The purified salts were dried to the anhydrous state and stored at 100°C.

ESTIMATED ERROR:

Nothing specified.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium bromide; NaBr; [7647-15-6]	Ricci, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*J. Am. Chem. Soc.* 1934, 56, 290-5.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	NaBr mass %	NaBr mol % (compiler)	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Density g cm^{-3}	Nature of the solid phase[a]
5	12.26	2.438	2.03	0.210	1.123	C(m)
	6.97	1.327	2.52	0.249	1.079	"
	0.00	0.000	5.479[b]	0.525	1.050	"
15	46.54	13.23	0.00	0.000	-	A
	27.15	6.266	1.91	0.229	1.278	S5+C
	22.08	4.837	2.05	0.234	1.219	C
	18.54	3.925	2.20	0.242	1.184	"
	13.41	2.710	2.53	0.266	1.136	"
	9.16	1.78	2.69	0.272	1.101	B
	4.27	0.802	3.53	0.345	1.064	"
	0.00	0.000	5.85[b]	0.562	1.051	"
25	48.41	14.11	0.00	0.000	1.530	A
	48.23	14.11	0.42	0.064	1.538	A+S5
	48.17	14.08	0.42	0.064	1.536	"
	48.21	14.10	0.42	0.064	1.541	"
	48.22	14.11	0.42	0.064	1.534	"
	48.21	14.10	0.42	0.064	1.537	"
	47.73	13.87	0.42	0.063	-	S5
	47.35	13.69	0.42	0.063	1.522	"
	46.7[illegible]	13.40	0.45	0.067	1.509	"
	43.58	12.01	0.55	0.079	1.472	"
	39.55	10.40	0.86	0.12	1.417	"
	38.83	10.13	0.95	0.13	1.406	"
	36.61	9.343	1.31	0.174	1.380	"
	35.23	8.867	1.51	0.198	1.367	"
	34.62	8.668	1.66	0.216	1.360	"
	34.34	8.575	1.71	0.222	1.359	"
	32.79	8.084	2.13	0.273	1.344	S5+C
	32.72	8.063	2.15	0.275	1.343	"
	32.56	8.011	2.18	0.279	1.343	"
	32.63	8.034	2.17	0.278	1.343	"
	32.68	8.050	2.16	0.277	1.343	"
	32.44	7.970	2.17	0.277	1.338	C
	26.39	6.072	2.35	0.281	1.266	"
	16.49	3.451	3.00	0.326	1.172	"
	7.78	1.52	4.46	0.454	1.104	"
	0.00	0.00	8.569[b]	0.8460	1.075	"
35	50.48	15.14	0.00	0.000		A
	50.04	15.16	1.01	0.159		A+S5
	50.00	15.14	1.02	0.161		"
	50.02	15.15	1.02	0.161		"
	49.46	14.86	1.03	0.161		S5
	47.82	14.05	1.08	0.165		"
	46.46	13.42	1.18	0.177		"
	44.96	12.75	1.30	0.192		"
	42.59	11.76	1.60	0.230		"
	40.55	10.96	1.98	0.278		"
	38.11	10.08	2.63	0.362		"
	38.1	10.08	2.6	0.358		S5+D(m?)

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium bromide; NaBr; [7647-15-6]	Ricci, J.E.
(2) Sodium iodate; $NaIO_3$ [7681-55-2]	*J. Am. Chem. Soc.* 1934, *56*, 290-5.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

	NaBr		$NaIO_3$			
t/°C	mass %	mol %	mass %	mol %	Density g cm^{-3}	Nature of the solid phase[a]
35	38.30	10.17	2.70	0.373		D(m?)
	36.52	9.498	2.81	0.380		"
	34.51	8.776	2.95	0.390		"
	0.00	0.00	10.58[b]	1.066		C
40	51.5	15.7	0.00	0.00		A
	50.84	15.67	1.37	0.220		A+S0
	50.84	15.67	1.37	0.220		"
	50.84	15.67	1.37	0.220		"
	50.37	15.42	1.39	0.221		S0
	50.43	15.46	1.42	0.226		"
	49.38	14.94	1.53	0.241		"
	48.41	14.49	1.71	0.266		"
	47.95	14.27	1.77	0.274		S0+S5
	47.96	14.28	1.80	0.279		S5
	46.82	13.74	1.89	0.288		"
	45.93	13.34	2.00	0.302		"
	44.86	12.86	2.13	0.318		"
	43.37	12.25	2.48	0.364		"
	42.38	11.84	2.59	0.376		"
	42.10	11.73	2.65	0.384		S5+D
	41.82	11.62	2.72	0.393		"
	41.96	11.67	2.69	0.389		"
	42.44	11.85	2.52	0.366		D(m)
	41.36	11.40	2.59	0.371		D
	40.05	10.86	2.63	0.371		"
	39.5	10.64	2.65	0.371		D+C
	37.73	9.952	2.75	0.377		D(m)
	37.29	9.789	2.80	0.382		"
	39.06	10.47	2.68	0.373		C
	36.79	9.575	2.62	0.355		"
	32.08	7.909	2.77	0.355		"
	27.16	6.355	3.04	0.370		"
	20.65	4.539	3.65	0.417		"
	0.00	0.000	11.70[b]	1.192		"
45	52.55	16.24	0.00	0.000		A
	51.79	16.30	1.81	0.296		A+S0
	49.91	15.35	2.08	0.333		S0
	49.5	15.23	2.5	0.40		S0+D
	50.29	15.67	2.56	0.415		D(m)
	48.64	14.79	2.51	0.397		D
	45.95	13.45	2.50	0.380		"
	42.63	11.94	2.58	0.376		"
	-	-	-	-		D+C
	0.00	0.00	12.83[b]	1.322		C

continued.....

COMPONENTS:	ORIGINAL MEASUREMENTS
(1) Sodium bromide; NaBr; [7647-15-6]	Ricci, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*J. Am. Chem. Soc.* 1934, *56*, 290-5.
(3) Water; H_2O; [7732-18-5]	

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	NaBr mass %	NaBr mol % (compiler)	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Density g cm^{-3}	Nature of the solid phase[a]
50	53.63	16.84	0.00	0.000		A
	53.0(+)	16.92	1.57(-)	0.261		A+E
	52.97	16.90	1.57	0.260		E
	52.57	16.89	2.37	0.396		E+S0
	52.39	16.80	2.40	0.400		S0
	52.12	16.65	2.40	0.399		"
	51.40	16.26	2.49	0.410		"
	50.97	16.06	2.62	0.429		S0+D
	50.90	16.02	2.63	0.430		"
	50.91	16.03	2.64	0.432		"
	50.93	16.04	2.63	0.431		"
	50.30	15.69	2.60	0.422		D
	47.72	14.32	2.54	0.396		"
	44.74	12.89	2.56	0.384		"
	41.56	11.50	2.67	0.384		"
	38.56	10.29	2.86	0.397		"
	32.41	8.087	3.41	0.442		"
	26.02	6.105	4.30	0.525		"
	23.54	5.403	4.73	0.564		"
	21.46	4.841	5.15	0.604		D+C
	19.75	4.365	4.93	0.566		C
	19.57	4.313	4.86	0.557		"
	13.28	2.790	6.28	0.686		"
	6.63	1.34	9.03	0.952		"
	0.00	0.00	13.49[b]	1.400		"

[a] A = $NaBr.2H_2O$; B = $NaIO_3.5H_2O$; C = $NaIO_3.H_2O$; D = $NaIO_3$; E = NaBr;
S5 = $2NaIO_3.3NaBr.15H_2O$; S0 = $2NaIO_3.3NaBr.10H_2O$; m = metastable

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

soly of $NaIO_3$ = 0.2929 mol kg^{-1} at 5°C
= 0.3163 mol kg^{-1} at 15°C
= 0.4736 mol kg^{-1} at 25°C
= 0.5979 mol kg^{-1} at 35°C
= 0.6696 mol kg^{-1} at 40°C
= 0.7438 mol kg^{-1} at 45°C
= 0.7880 mol kg^{-1} at 50°C

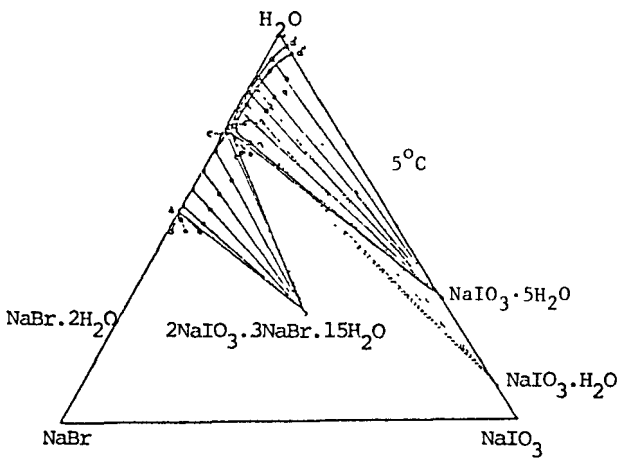
COMMENTS AND/OR ADDITIONAL DATA:

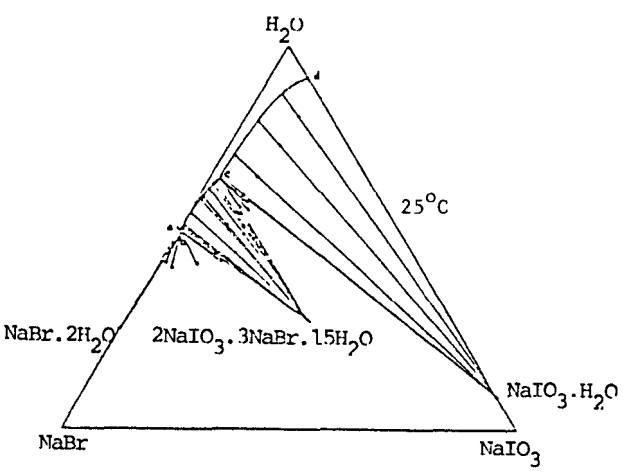
Isotherms based on mass % units are reproduced below.

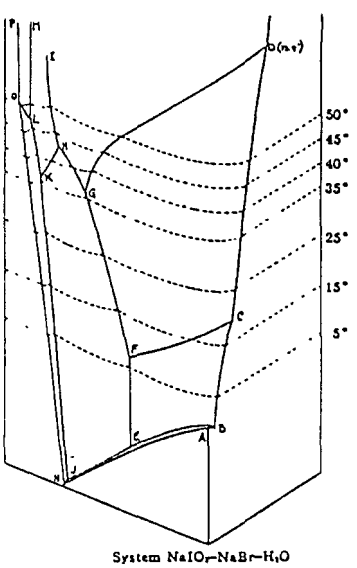
continued.....

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium bromide; NaBr; [7647-15-6]	Ricci, J.E.
(2) Sodium iodate; $NaIO_3$; [7681-55-2]	*J. Am. Chem. Soc.* 1934, *56*, 290-5.
(3) Water; H_2O; [7732-18-5]	

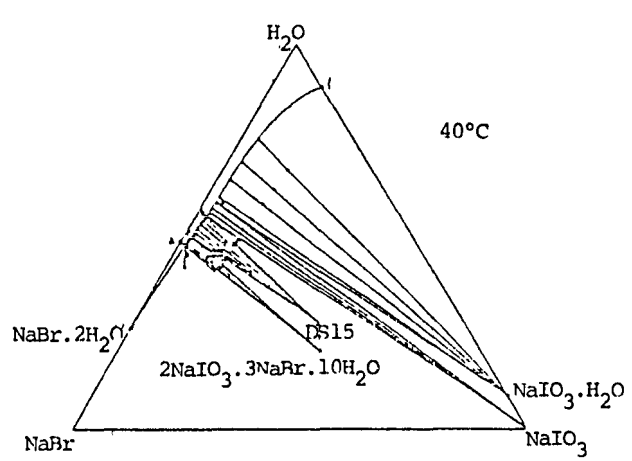
COMMENTS AND/OR ADDITIONAL DATA: (Continued)







System $NaIO_3$–NaBr–H_2O



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodide; NaI; [7681-82-5] (2) Sodium iodate; $NaIO_3$; [7681-55-2] (3) Water; H_2O; [7732-18-5]	Hill, A.E.; Willson, H.S.; Bishop, J.A. *J. Am. Chem. Soc.* 1933, 55, 520-6.
VARIABLES: Composition T/K = 281 - 313	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	NaI mass %	NaI mol % (compiler)	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Density g cm^{-3}	Nature of the solid phase[a]
8	0.00	0.00	3.89[b]	0.367	1.035	A
	6.05	0.783	1.99	0.195	1.069	"
	17.18	2.471	1.44	0.157	1.169	"
	19.47	2.882	1.84	0.206	1.196	A+S
	25.20	3.924	0.72	0.085	1.249	S
	40.70	7.629	0.08	0.011	1.445	"
	57.87	14.17	0.02	0.004	-	"
	62.44	16.66	0.02	0.004	1.861	S+D
	62.49	16.68	0.00	0.000	-	D
25	0.00	0.00	8.67[b]	0.857	1.077	B
	11.57	1.617	4.23	0.448	1.107	"
	24.54	3.882	2.68	0.321	1.253	"
	28.70	4.758	2.48	0.311	1.290	"
	31.72	5.454	2.41	0.314	1.340	"
	31.74	5.455	2.36	0.307	1.340	"
	31.99	5.515	2.36	0.308	1.341	B+S
	33.04	5.749	2.04	0.269	1.352	S
	36.64	6.607	1.22	0.167	1.377	"
	46.08	9.359	0.31	0.048	-	"
	56.83	13.70	0.17	0.031	1.722	"

continued.....

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The salts were weighed into stoppered Pyrex tubes with weighed amounts of water and stirred by mechanical inversion in a thermostat for 4-7 days.
Small samples of the saturated solution were withdrawn by suction through a filter into a pipet. One sample was dried to constant weight in the oven, while a second was analyzed for iodate.
Iodate was determined by iodometry, thiosulfate solution being used in the titration. The water was determined gravimetrically (after evaporation).

SOURCE AND PURITY OF MATERIALS:

Sodium iodate was recrystallized from water and dehydrated in an electric oven at 100°C. Sodium iodide (c.p. grade) was purified by recrystallization and dried in an electric oven at 100°C.

ESTIMATED ERROR:

Soly: precision of the analyses about 0.3 %.
Temp: not given.

REFERENCES:

COMPONENTS:

(1) Sodium iodide; NaI; [7681-82-5]

(2) Sodium iodate; $NaIO_3$; [7681-55-2]

(3) Water; H_2O; [7732-18-5]

ORIGINAL MEASUREMENTS:

Hill, A.E.; Willson, H.S.; Bishop, J.A.

J. Am. Chem. Soc. 1933, 55, 520-6.

EXPERIMENTAL VALUES: (Continued)

Composition of saturated solutions

t/°C	NaI mass %	NaI mol % (compiler)	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	Density g cm^{-3}	Nature of the solid phase[a]
25	64.67	18.06	0.08	0.017	-	S+D
	64.72	18.06	0.00	0.000	-	D
40	0.00	0.000	11.70[b]	1.192		B
	15.33	2.254	5.24	0.584		"
	18.16	2.738	4.74	0.541		"
	19.64	3.001	4.47	0.517		"
	22.06	3.441	3.90	0.461		"
	26.85	4.408	3.49	0.434		C
	33.65	5.970	2.92	0.392		"
	40.52	7.877	2.78	0.409		"
	41.16	8.076	2.79	0.415		C+S
	41.30	8.121	2.80	0.417		S
	42.55	8.510	2.72	0.412		"
	51.97	11.62	0.58	0.098		"
	64.40	18.04	0.47	0.100		"
	66.15	19.15	0.32	0.070		"
	67.58	20.16	0.28	0.063		S+D
	67.35	19.87	0.00	0.000		D

[a] A = $NaIO_3.5H_2O$; B = $NaIO_3.H_2O$; C = $NaIO_3$; D = $NaI.2H_2O$; S = solid solution

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

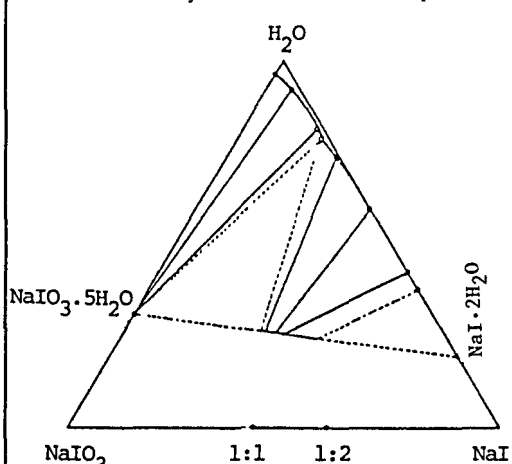
soly of $NaIO_3$ = 0.205 mol kg^{-1} at 8°C

= 0.480 mol kg^{-1} at 25°C

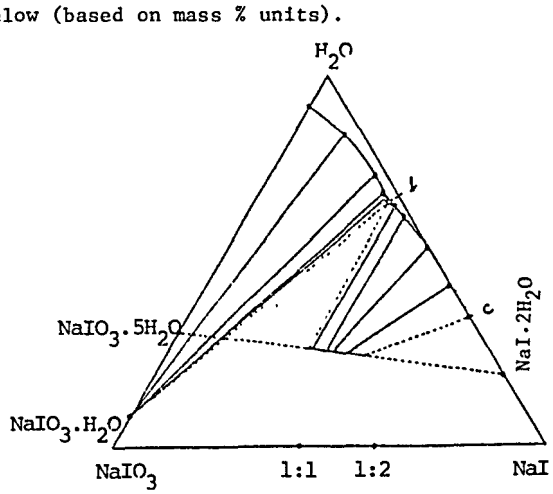
= 0.6696 mol kg^{-1} at 40°C

COMMENTS AND/OR ADDITIONAL DATA:

The solubility isotherms are reproduced below (based on mass % units).



8°C Isotherm



25°C Isotherm

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2]	Hill, A.E.; Ricci, J.E.
(2) Potassium iodate; KIO_3; [7758-05-6]	*J. Am. Chem. Soc.* 1931, 53, 4305-15.
(3) Water; H_2O; [7732-18-5]	
VARIABLES:	**PREPARED BY:**
Composition at 278.2, 298.2, 323.2 K	Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	KIO_3 mass %	KIO_3 mol % (compiler)	Density g cm^{-3}	Nature of the solid phase[a]
5	0.00	0.000	5.16	0.456	1.043	A
	1.41	0.136	4.71	0.420	1.051	"
	2.17	0.211	4.72	0.424	1.060	A+B
	2.48	0.238	3.19	0.283	1.046	B
	3.28[b]	0.308	0.00	0.000	1.028	"
25	0.00	0.000	8.45	0.771	1.071	A
	4.26	0.433	7.09	0.666	1.098	"
	7.13	0.743	6.73	0.649	1.126	A+C
	7.79	0.793	3.79	0.357	1.103	C
	8.57[b]	0.846	0.00	0.000	1.074	"
50	0.00	0.000	13.21	1.265	-	A
	3.92	0.417	11.92	1.173	-	"
	7.70	0.847	11.14	1.133	-	"
	10.92	1.237	10.61	1.112	-	A+C
	11.41	1.261	7.93	0.810	-	C
	12.55	1.349	4.24	0.421	-	"
	13.49[b]	1.400	0.00	0.000	-	"

[a] A = KIO_3; B = $NaIO_3.5H_2O$; C = $NaIO_3.H_2O$

[b] For the binary system the compiler computes the following:
soly of $NaIO_3$ = 0.171 mol kg^{-1} at 5°C; = 0.474 mol kg^{-1} at 25°C;
= 0.7880 mol kg^{-1} at 50°C.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The complexes used for the ternary system were made up from weighed amounts of water, dried $NaIO_3$ and KIO_3. For the 5°C isotherm, the solids were first dissolved by heating, and the solutions were seeded after cooling. The solutions were agitated in a thermostat at the desired temperature for about thirteen days.
For the analysis, samples of filtered solution were evaporated to dryness at 110°C, and other samples were titrated for iodate by iodometry.

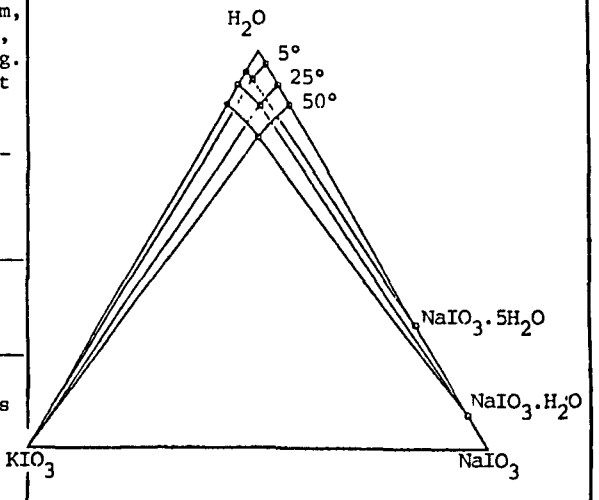
SOURCE AND PURITY OF MATERIALS:

Nothing specified.

ESTIMATED ERROR:

Nothing specified, but the compiler assumes that the agreement between duplicate analyses was around ± 0.5 %.

COMMENTS AND/OR ADDITIONAL DATA:



5°C, 25°C, 50°C Isotherm
(mass % units)

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2] (2) Rubidium iodate; $RbIO_3$; [13446-76-9] (3) Water; H_2O; [7732-18-5]	Vinogradov, E.E.; Karataeva, I.M. *Zh. Neorg. Khim.* 1982, 27, 2155-7; *Russ. J. Inorg. Chem.* (*Engl. Transl.*) 1982, 27, 1218-9.
VARIABLES: Composition at 323.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	$RbIO_3$ mass %	$RbIO_3$ mol % (compiler)	Nature of the solid phase[a]
50	13.52[b]	1.403	-	-	A
	13.40	1.419	1.96	0.158	"
	13.77	1.465	2.03	0.164	A+B
	13.74	1.461	2.05	0.166	"
	12.20	1.283	2.50	0.200	B
	7.25	0.723	2.30	0.174	"
	3.96	0.383	2.32	0.170	"
	2.92	0.282	3.29	0.241	"
	-	-	4.39[b]	0.317	"

[a] A = $NaIO_3.H_2O$; B = $RbIO_3$

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

soly of $NaIO_3$ = 0.7900 mol kg^{-1}

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

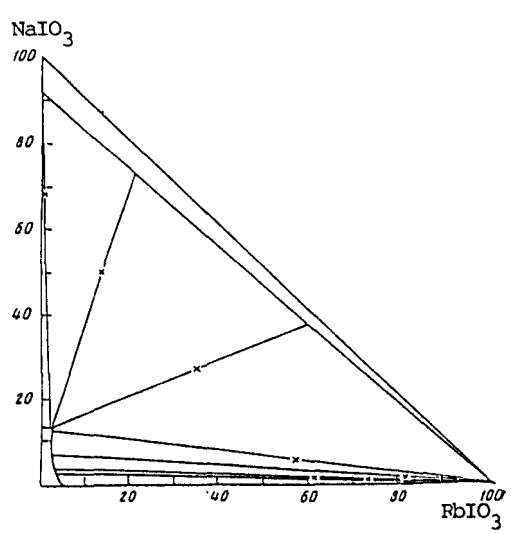
AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:
Probably the isothermal method was used. Equilibrium was established after 4-5 days. Rubidium and iodate ions in the liquid and solid phases were analyzed. The sodium content was determined by difference. The composition of the solid phase was determined by X-ray analysis.

SOURCE AND PURITY OF MATERIALS:
No information given.

ESTIMATED ERROR:
Nothing specified.

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



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2] (2) Cesium iodate; $CsIO_3$; [13454-81-4] (3) Water; H_2O; [7732-18-5]	Vinogradov, E.E.; Karataeva, I.M. *Zh. Neorg. Khim.* 1982, *27*, 2155-7; *Russ. J. Inorg. Chem.* (*Engl. Transl.*) 1982, *27*, 1218-9.
VARIABLES: Composition at 323.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions

t/°C	$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	$CsIO_3$ mass %	$CsIO_3$ mol % (compiler)	Nature of the solid phase[b]
50	13.52[b]	1.403	-	-	A
	12.15	1.262	1.41	0.0942	"
	12.46	1.309	2.16	0.146	A+B
	12.46	1.306	1.96	0.132	"
	12.49	1.314	2.23	0.151	"
	12.61	1.325	2.02	0.136	"
	11.77	1.231	2.40	0.161	B
	10.27	1.054	2.12	0.140	"
	6.93	0.688	2.18	0.139	"
	3.34	0.324	3.44	0.215	"
	-	-	5.07[b]	0.312	"

[a] A = $NaIO_3.H_2O$; B = $CsIO_3$

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

soly of $NaIO_3$ = 0.7900 mol kg^{-1}

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

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Probably the isothermal method was used. Equilibrium was established after 4-5 days. Cesium and iodate ions in the liquid and solid phases were analyzed. The sodium content was determined by difference. The composition of the solid phase was determined by X-ray analysis.

SOURCE AND PURITY OF MATERIALS:

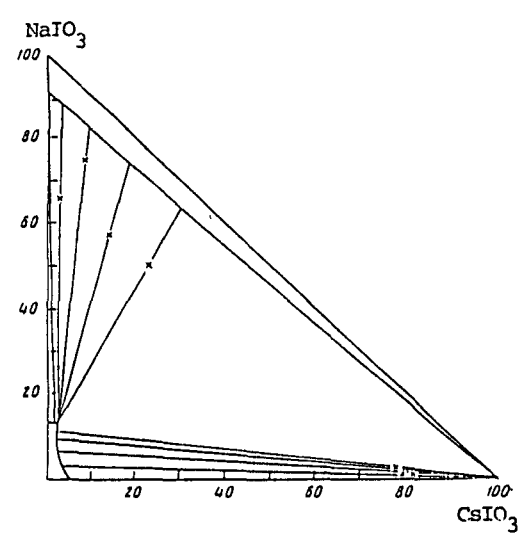
No information given.

ESTIMATED ERROR:

Nothing specified.

COMMENTS AND/OR ADDITIONAL DATA:

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



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2] (2) Aluminum iodate; $Al(IO_3)_3$; [15123-75-3] (3) Water; H_2O; [7732-18-5]	Shklovskaya, R.M.; Arkhipov, S.M.; Kidyarov, B.I.; Tokareva, A.G. *Zh. Neorg. Khim.* 1980, 25, 1423-4; *Russ. J. Inorg. Chem.* (*Engl. Transl.*) 1980, 25, 791.
VARIABLES: Composition at 298.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions at 25°C

$NaIO_3$		$Al(IO_3)_3$		Nature of the solid phase[a]
mass %	mol % (compiler)	mass %	mol % (compiler)	
8.66[b]	0.856	-	-	A
8.30	0.821	0.38	0.013	"
8.15	0.819	2.02	0.0728	A+B
6.83	0.678	2.21	0.0787	B
6.44	0.638	2.38	0.0846	"
6.30	0.624	2.45	0.0871	"
5.14	0.504	2.66	0.0936	"
3.60	0.350	3.18	0.111	"
1.52	0.146	4.15	0.143	"
0.9	0.09	4.48	0.154	"
-	-	5.70[b]	0.197	"

[a] A = $NaIO_3.H_2O$ B = $Al(IO_3)_3.6H_2O$

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

soly of $NaIO_3$ = 0.479 mol kg^{-1}

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

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The isothermal method was used. Equilibrium was reached within 15-20 days.
The aluminum content in the co-existing phases was determined by complexometric titration.
Sodium was determined by the flame photometry. The photometry was carried out on solutions in which the sodium concentration did not exceed 10 μg dm^{-3}.

SOURCE AND PURITY OF MATERIALS:

Aluminum iodate hexahydrate was synthesized from iodic acid and aluminum hydroxide. Chemically pure grade sodium iodate monohydrate was recrystallized twice from aqueous solution.

ESTIMATED ERROR:

Soly: 1-3 rel %.
Temp: precision ± 0.1 K.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2] (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.; Timofeev, S.I. *Zh. Neorg. Khim.* 1983, *28*, 2435-6; *Russ. J. Inorg. Chem.* (*Engl. Transl.*) 1983, *28*, 1384-5.
VARIABLES: Composition at 298.2 K	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions at 25°C

$NaIO_3$ mass %	$NaIO_3$ mol % (compiler)	$Hf(IO_3)_4$ mass %	$Hf(IO_3)_4$ mol % (compiler)	Nature of the solid phase[a]
-	-	0.00037	7.6×10^{-6}	A
0.87	0.080	0.00036	7.4×10^{-6}	"
1.45	0.134	0.00034	7.1×10^{-6}	"
2.38	0.221	0.00027	5.7×10^{-6}	"
3.29	0.309	0.00025	5.3×10^{-6}	"
4.03	0.381	0.00023	4.9×10^{-6}	"
4.89	0.466	0.00020	4.3×10^{-6}	"
5.68	0.545	0.00018	3.9×10^{-6}	"
6.38	0.617	0.00020	4.4×10^{-6}	"
7.18	0.699	0.00032	7.0×10^{-6}	"
8.23	0.810	0.00034	7.5×10^{-6}	"
8.62	0.851	0.00035	7.8×10^{-6}	A+B
8.66[b]	0.856	-	-	B

[a] A = $Hf(IO_3)_4$ B = $NaIO_3.H_2O$

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

soly of $NaIO_3$ = 0.479 mol kg^{-1}

soly of $Hf(IO_3)_4$ = 4.2×10^{-6} mol kg^{-1}

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The isothermal method was used. Equilibrium was reached in 25-30 days. Samples of the coexisting phases were analyzed for sodium by emission spectrometry. The hafnium content was determined potentiometrically using Arsenazo III after reducing the iodate ion with hydroxylamine.

The composition in the solid phase was determined by the method of residues and the result was checked by X-ray analysis.

SOURCE AND PURITY OF MATERIALS:

C.p. grade $NaIO_3.H_2O$ was recrystallized from distilled water.
Hafnium iodate was prepared by the action of aqueous iodic acid solution on freshly precipitated hafnium hydroxide (ref 1.)

ESTIMATED ERROR:

Soly: within 1-3 % rel. % (emission spectrometry for Na).
Temp: precision ± 0.1 K.

REFERENCES:

1. Deabriges, J.; Rohmer, R. *Bull. Soc. Chim. Fr.* 1968, *2*, 521.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2] (2) Iodic acid; HIO_3; [7782-68-5] (3) Water; H_2O; [7732-18-5]	Meerburg, P.A. Z. Anorg. Allg. Chem. 1905, 45, 324-44.
VARIABLES: T/K = 303 Composition	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES: Composition of saturated solutions at 30°C

Iodic Acid mass %	Iodic Acid mol % (compiler)	Sodium Iodate mass %	Sodium Iodate mol % (compiler)	Nature of the solid phase
0	0	9.36[b]	0.931	A
1.98	0.526	9.52	0.968	"
4.86	0.576	10.22	1.077	"
5.86	0.708	11.04	1.187	"
7.40	0.915	11.60	1.275	A(m)
9.73	1.280	14.73	1.722	"
6.76	0.826	11.18	1.215	A+C
6.75	0.824	11.10	1.205	"
6.66	0.814	11.28	1.226	"
7.80	0.955	10.30	1.121	C
9.15	1.120	9.00	0.980	"
9.93	1.222	8.71	0.953	"
11.20	1.280	7.54	0.826	"
11.89	1.471	7.21	0.793	C+D
11.75	1.451	7.18	0.788	"
14.62	1.822	5.65	0.629	D
23.23	3.139	3.69	0.443	"
32.68	4.920	2.91	0.389	"
40.91	6.882	2.64	0.395	"
46.62	8.567	2.67	0.436	"
55.48	11.77	2.12	0.400	"
65.47	16.94	1.83	0.420	"
76.19	25.73	1.42	0.426	D+B
76.70[b]	25.21	0	0	B

[a] A = $NaIO_3.1.5H_2O$; B = HIO_3; C = $Na_2O.2I_2O_5$; D = $NaIO_3.2HIO_3$.

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

soly of HIO_3 = 18.71 mol kg^{-1}

soly of $NaIO_3$ = 0.522 mol kg^{-1}

METHOD/APPARATUS/PROCEDURE:

A mixture of $NaIO_3$, HIO_3 and water was placed in a bottle and the bottle agitated in a thermostat for a week or more at a desired temperature. Equilibrium was established from supersaturation.

The iodic acid and sodium iodate contents were detd as follows: an excess of KI was added to an aliquot of satd sln, and the HIO_3 content detd by titration of the iodine liberated with standard sodium thiosulfate. Dil sulfuric acid was then added to the solution and the iodine liberated was again titrated with sodium thiosulfate to obtain the total iodate concentration.

The sodium iodate concentration was calculated from the difference between the second and the first titration.

Composition of solid phases determined by the method of residues.

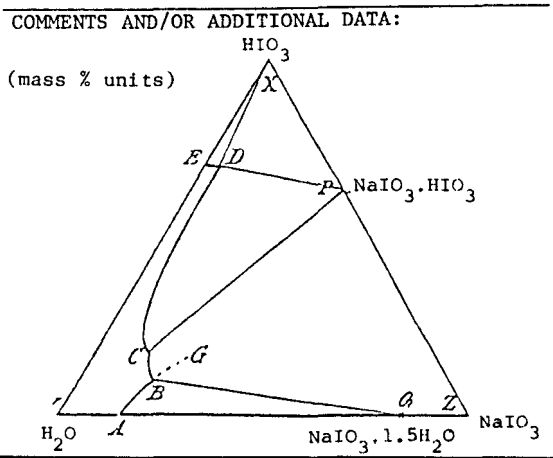
SOURCE AND PURITY OF MATERIALS

Nothing specified.

ESTIMATED ERROR:

Nothing specified.

COMMENTS AND/OR ADDITIONAL DATA:



COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [7681-55-2] (2) Iodic acid; HIO_3; [7782-68-5] (3) Water; H_2O; [7732-18-5]	Shibuya, M.; Watanobe, T. *Denki Kagaku* 1967, *35*, 550-8
VARIABLES: Composition T/K = 288.2	**PREPARED BY:** Hiroshi Miyamoto and Mark Salomon

EXPERIMENTAL VALUES: Composition of saturated solutions at 15.0°C

Iodic acid mass %	Iodic acid mol % (compiler)	Sodium Iodate mass %	Sodium Iodate mol % (compiler)	density g cm^{-3}	Nature of the solid phase[a]
0.00	0.000	5.87[b]	0.564	1.051	A
0.62	0.067	5.87	0.568	1.057	"
1.79	0.197	5.87	0.574	1.070	"
2.59	0.287	5.92	0.584	1.077	"
3.81	0.428	5.90	0.589	1.089	"
5.12	0.583	5.99	0.606	1.103	"
5.66	0.649	6.14	0.626	1.109	"
7.63	0.895	6.38	0.665	1.132	A+B
8.06	0.947	6.18	0.646	1.135	B
9.11	1.08	5.64	0.592	1.143	B+C
10.57	1.256	4.74	0.501	1.145	C
12.21	1.459	3.68	0.391	1.152	"
19.16	2.435	2.43	0.274	1.215	"
33.45	5.018	1.88	0.251	-	"
43.26	7.444	1.82	0.278	-	"

[a] A = $NaIO_3.5H_2O$; B = $2NaIO_3.I_2O_5$; C = $NaIO_3.I_2O_5$

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

Soly of $NaIO_3$ = 0.315 mol kg^{-1}

AUXILLARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Isothermal method by three techniques depending upon mole fraction, x, of HIO_3. (1) For x = 0 to 0.574. Excess acid added to $NaIO_3$ sln and stirred for 5 h. (2) For x = 0.574 to 0.646. Aq acid sln for x = 0.638 was cooled to obtain HIO_3 crystals. The crystals were added to an unsatd sln of $NaIO_3$, and the mixture was stirred for a long time. (3) x = 0.646 to 1.0. Method essentially identical to (2) except that the acid crystals pptd from a sln where x = 0.883, and stirring time was stated as 48 h.

After equil was established and the slns allowed to settle, aliquots of satd sln were withdrawn with a pipet and weighed. The densities of the satd slns were detd. The total iodate concn was detd iodometrically, and the HIO_3 detd by acid-base titrn. Sodium was detd by difference.

The composition of the solid phase was detd as follows: chem analyses were used to detn the acid and $NaIO_3$ contents, and thermogravimetry and NMR were used to detn the water content.

SOURCE AND PURITY OF MATERIALS:

Sodium iodate was recryst three times from an aqueous sln prepd by electrolytic oxidation of iodine in alkaline sln. Iodic acid was prepd by ion exchange as follows: aq $NaIO_3$ sln was passed through a column of H^+-resin (Amberlite IR 120), and the eluate was concentrated to about 30 % acid content by evaporation. The acid content was detd by acid-base titration.

ESTIMATED ERROR:

Soly: rel error probably ± 0.2 % (compilers).

Temp: precision ± 0.05 K.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium iodate; $NaIO_3$; [6781-55-2] (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, Jr., M.K. *Anal. Chem.* 1980, *52*, 1039-44.
VARIABLES: T/K = 298	**PREPARED BY:** Hiroshi Miyamoto

EXPERIMENTAL VALUES:

The solubility product of $NaIO_3$ in methanol at 25°C is

$$1.5 \times 10^{-7} \text{ mol}^2 \text{ dm}^{-6}$$

COMMENTS AND/OR ADDITIONAL DATA:

In solutions saturated with respect to $NaIO_3$ and dibenzo-18-crown-6 (DB-18), the authors studied the equilibrium

$$Na^+ + L = LNa^+ \quad ; \quad K_f(LNa^+) = [L][Na^+]/[LNa^+]$$

where L = (ligand) concentration of dibenzo-18-crown-6. Details of experimental method presumed to be similar to those for KIO_3-DB-18-MeOH system (compiled elsewhere in this volume). Authors only report log $[K_f(LNa^+)/\text{mol}^{-1}\ \text{dm}^3]$ = 4.4.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
A Markson No. 1001 Na^+ specific ion electrode used to determine a_{Na^+}. The electrode was calibrated and found to respond in a Nernstian manner.	Fisher "c.p." grade $NaIO_3$ was recrystallized 3 times from distilled water, and dried at 70°C. (Fisher "Spectro purity" grade) was distilled from magnesium turnings.
	ESTIMATED ERROR: Nothing specified.
	REFERENCES: