

COMPONENTS:				ORIGINAL MEASUREMENTS:	
(1) Iodic acid; HIO_3 ; [7782-68-5]				Groschuff, E.	
(2) Water; H_2O ; [7732-18-5]				Z. Anorg. Alleg. Chem. <u>1905</u> , 47, 331-52.	
VARIABLES:				PREPARED BY:	
Temperature: 254.2 - 433.2 K				Michelle C. Uchiyama	
EXPERIMENTAL VALUES:					
$t/^\circ\text{C}$	T/K	mass %	mol % ^a	Nature of the solid phase	
- 0.30	272.85	1.78	0.185	Ice	
- 0.67	272.48	4.35	0.464	"	
- 1.01	272.14	7.17	0.785	"	
- 1.90	271.25	17.66	2.149	"	
- 2.38	270.77	27.65	3.766	"	
- 4.72	268.43	54.19	10.81	"	
- 6.32	266.83	60.72	13.67	"	
-12.25	260.90	71.04	20.08	"	
-13.5	259.7	72.2	21.0	"	
-14 ^b	259.2	72.8	21.5	Ice + HIO_3	
-15	258.2	73.8	22.4	Unstable ice	
-19	254.2	76.2	24.7	"	
0	273.2	74.1	22.7	HIO_3	
13.5 ^c	286.7	74.1	22.7	"	
16	289.2	75.6	24.1	"	
18 ^c	291.2	74.55	23.08	"	
40	313.2	77.7	26.3	"	
60	333.2	80.0	29.1	"	
80	353.2	82.5	32.6	"	
85	358.2	83.0	33.3	"	
101	374.2	85.2	37.1	"	
110	383.2	86.5	39.6	$\text{HIO}_3 + \text{HI}_3\text{O}_8$	
125	398.2	87.2	41.1	HI_3O_8	
140	413.2	88.3	43.6	"	
160	433.2	90.5	49.4	"	
AUXILIARY INFORMATION					
METHOD/APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:	
Below 0°C . Synthetic method. Solutions of known concn cooled to ppt ice, then warmed to determine the temperature of disappearance of ice.				Nothing specified.	
0°C to 100°C . Isothermal method. Excess powdered HIO_3 and water sealed in glass tube and agitated for several hours (several days at 0°C). After settling, aliquots analyzed by thiosulfate titration.					
Above 100°C . Isothermal as for 0 - 100°C . Satd slns rapidly cooled to 0°C before aliquots taken for analyses. Author states no pptn occurs in this process of cooling before analyses.				ESTIMATED ERROR:	
Solid phases analyzed gravimetrically. Solid dried between filter paper, washed with alcohol, dried at the experimental temperature. Weight loss determined by heating to 190 - 195°C .				Author stated solubilities 1-2% higher by isothermal method. Nothing else specified.	
Footnotes to data table:				REFERENCES:	
^a compiler's calculation					
^b extrapolated eutectic point					
^c Synthetic method used for these two points					