COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium dihydrogenphosphate; NaH_2PO_4; [7558-80-7] (2) Water; H_2O; [7732-18-5]	Apfel, O. Dissertation, Technical University, Darmstadt, 1911.
VARIABLES:	**PREPARED BY:**
Composition and temperature.	J. Eysseltová

EXPERIMENTAL VALUES:

Composition of saturated solutions in the NaH_2PO_4-H_2O system.

	PO_4^{3-}	Na^+	NaH_2PO_4 [b]		
t/°C	c [a]	c [a]	mass%	mol/kg	solid phase
0	3.01		36.13	4.71	
0		2.84	34.08	4.31	
25	4.08		48.97	8.00	$NaH_2PO_4 \cdot 2H_2O$
35.5	4.47		53.65	9.64	"
40	4.70		56.41	10.78	"
44 [c]	4.83		57.97	11.49	"
44	5.06		60.73	12.89	$NaH_2PO_4 \cdot H_2O$
50	5.15		61.81	13.48	$NaH_2PO_4 \cdot 2H_2O$
50		5.26	63.13	14.27	"
55	5.32		63.85	14.72	$NaH_2PO_4 \cdot H_2O$
58	5.46		65.53	15.84	"
61	5.48		65.77	16.01	NaH_2PO_4
65	5.49		65.89	16.10	"
70	5.52		66.25	16.36	"
75	5.60		67.21	17.08	"
83	5.76		69.13	18.66	"

[a] These concentrations are expressed as mol/1000 g soln.

[b] These values were calculated by the compiler.

[c] This was a metastable equilibrium.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
All the experiments were performed in a water thermostat. Equilibrium was ascertained by repeated analysis of the liquid phase, which was separated from the solid phase by filtration through a mat of platinum wires. Phosphate was determined gravimetrically as $Mg_2P_2O_7$. Sodium was determined as Na_2SO_4 after phosphoric acid had been removed as lead phosphate.	No information is given.
	ESTIMATED ERROR:
	No information is given.
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium dihydrogenphosphate; NaH_2PO_4; [7558-80-7] (2) Water; H_2O, [7732-18-5]	Imadsu, A. *Mem. Col. Sci. Emp. (Kyoto)* 1911-12, 3, 257-63.
VARIABLES: Composition and temperature.	**PREPARED BY:** J. Eysseltová

EXPERIMENTAL VALUES:

Solubility in the NaH_2PO_4-H_2O system.

	g/100 g H_2O			
t/°C		mean	mass%[a]	mol/kg[a]
0.10	57.84	57.86	36.64	4.82
	57.87		36.66	4.82
1.00	59.10	59.08	37.15	4.92
	59.06		37.13	4.92
3.00	61.45	61.47	38.06	5.12
	61.49		38.08	5.12
5.00	63.80	63.82	38.95	5.32
	63.84		38.96	5.32
10.00	69.85	69.87	41.12	5.82
	69.89		41.14	5.82
15.00	76.74	76.72	43.42	6.39
	76.70		43.41	6.39
20.00	85.23	85.21	46.01	7.10
	85.18		46.00	7.08
25.00	94.62	94.63	48.62	7.88
	94.63		48.62	7.88
26.00	96.70	96.73	49.16	8.06
	96.75		49.17	8.06
27.00	99.20	99.20	49.80	8.26
	99.19		49.80	8.26
28.00	101.75	101.71	50.43	8.48
	101.67		50.41	8.47

(continued next page)

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

Equilibrium was approached from both undersaturation and supersaturation. Care was taken during sampling to insure the absence of solid particles. Samples of solution were weighed, evaporated to dryness and heated strongly to convert the solid into metaphosphate. The concentration of the solution was calculated from the weight of metaphosphate formed.

SOURCE AND PURITY OF MATERIALS:

NaH_2PO_4 was prepared by adding H_3PO_4 to ordinary sodium phosphate until the solution gave no precipitate with $BaCl_2$. The solution was then evaporated until crystals formed. These crystals were recrystallized. Subsequent analysis showed that the crystals were free from ordinary impurities.

ESTIMATED ERROR:

The temperature was kept constant to within 0.03 K (below 40°C), 0.05 K (between 40 and 60°C), 0.1 K (between 60 and 80°C), and 0.15 K (above 80°C). Duplicate analyses agreed within ±0.1%.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium dihydrogenphosphate; NaH_2PO_4; [7558-80-7]	Imadsu, A.
(2) Water; H_2O, [7732-18-5]	*Mem. Col. Sci. Emp. (Kyoto)* 1911-12, 3, 257-63.

EXPERIMENTAL VALUES cont'd:

Solubility in the NaH_2PO_4-H_2O system.

	g/100 g H_2O			
t/°C		mean	mass%[a]	mol/kg[a]
30.00	106.40	106.45	51.55	8.86
	106.50		51.57	8.87
31.00	108.99	108.93	52.15	9.08
	108.87		52.12	9.07
33.00	114.38	114.31	53.35	9.53
	114.23		53.32	9.52
34.00	117.08	117.14	53.93	9.76
	117.20		53.96	9.76
35.00	120.42	120.44	54.63	10.03
	120.45		54.64	10.04
37.00	126.82	126.76	55.91	10.57
	126.70		55.89	10.56
40.00	138.22	138.16	58.02	11.52
	138.10		58.00	11.51
40.20	139.12	139.06	58.18	11.59
	139.00		58.16	11.58
40.55	140.95	140.83	58.50	11.74
	140.70		58.45	11.72
41.00	142.50	142.55	58.76	11.87
	142.60		58.78	11.88
42.00	143.80	143.83	58.98	11.98
	143.85		58.99	11.99
45.00	148.19	148.20	59.71	12.35
	148.20		59.71	12.35
50.00	158.55	158.61	61.32	13.21
	158.67		61.34	13.22
52.00	163.91	163.84	62.11	13.66
	163.76		62.09	13.64
55.00	170.93	170.85	63.09	14.24
	170.77		63.07	14.23
56.00	173.15	173.23	63.39	14.43
	173.30		63.41	14.44
57.00	175.87	175.81	63.75	14.65
	175.74		63.73	14.64
58.00	177.33	177.24	63.94	14.78
	177.14		63.92	14.76
60.0	179.31	179.33	64.20	14.94
	179.34		64.20	14.94
62.0	181.20	181.35	64.44	15.10
	181.50		64.48	15.12
65.0	185.06	184.99	64.92	15.42
	184.92		64.90	15.41
69.0	190.17	190.24	65.54	15.84
	190.31		65.55	15.86
80.0	207.08	207.29	67.44	17.25
	207.50		67.48	17.29
90.0	225.17	225.31	69.25	18.76
	225.45		69.27	18.78
99.1	246.20	146.56	71.11	20.51
	246.92		71.17	20.57

[a] These values were calculated by the compiler.

Examination of the equilibrium solid phases showed the presence of the anhydrous salt, the monohydrate, dihydrate and tetrahydrate. The transition points of anhydrous salt and monohydrate and of monohydrate and dihydrate were estimated to be 57.4°C and 40.8°C, respectively.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Sodium metaphosphate; $NaPO_3$; [10361-03-2] (2) Water; H_2O; [7732-18-5]	Morey, G.W. *J. Am. Chem. Soc.* 1953, 75, 5794-7.
VARIABLES:	**PREPARED BY:**
Temperature and composition.	J. Eysseltová

EXPERIMENTAL VALUES:

Solubility of $NaPO_3$ in water.

concentration				
wt. fraction	mass%[a]	mol/kg[a]	t/°C.	primary phase
0.70	70	22.88	147	NaH_2PO_4
0.739	73.9	27.77	159	"
0.765	76.5	31.92	210	$Na_2H_2P_2O_7$
0.78	78	34.77	235	"
0.794	79.4	37.80	256	"
0.849	84.9	55.14	305	"
0.92	92	112.8	348	"
0.93	93	130.3	402	$NaPO_3$II
0.96	96	235.4	517	$NaPO_3$I

[a] These values were calculated by the compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solubilities below 400°C were made in sealed glass tubes rotating in an oven which was provided with an automatic temperature control (1). Runs above 400°C were also made in sealed glass tubes but in an ordinary furnace without continuous rotation. The tubes were inverted several times to make sure that equilibrium was obtained. Temperatures were determined with a Pt-Pt90Rh10 thermocouple, the bare junction of which was within a few mm of the middle of the tube. The glass tubes were Corning 702 glass.

SOURCE AND PURITY OF MATERIALS:

$NaPO_3 \cdot H_2O$ was obtained from Ontario Research Foundation, but the purity is not specified.

ESTIMATED ERROR:

No information is given but the compiler estimates the accuracy of the temperature measurement to be within ± 1°C.

REFERENCES:

1. Kracek, F.C.; Morey, G.W.; Merwin, H.E. *Am. J. Sci.* 1938, 35A, 143.