

COMPONENTS:				ORIGINAL MEASUREMENTS:					
(1) Tripotassium phosphate; $K_3PO_4$ ; [7778-53-2]				Parker, E.G.					
(2) Phosphoric acid; $H_3PO_4$ ; [7664-38-2]				J. Phys. Chem. <u>1914</u> , 18, 653-61.					
(3) Potassium hydroxide; KOH; [1310-58-3]									
(4) Water; $H_2O$ ; [7732-18-5]									
VARIABLES:				PREPARED BY:					
Composition at 25°C.				J. Eysseltová					
EXPERIMENTAL VALUES:									
Solubility in the $KOH-H_3PO_4-H_2O$ system at 25°C.									
$K^+$	$PO_4^{3-}$	$K_3PO_4^a$		KOH <sup>a</sup>		$H_3PO_4^a$		$H_2O^a$	solid <sup>c</sup>
conc <sup>b</sup>	conc <sup>b</sup>	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg	mass%	phase <sup>c</sup>
1.40	8.56	9.90	4.32	----	----	79.31	75.08	18.79	A
1.47	6.74	10.40	1.72	----	----	61.25	22.04	28.35	"
2.31	5.00	16.34	1.82	----	----	41.45	10.02	42.21	B
1.89	3.20	13.37	1.02	----	----	25.18	4.18	61.45	"
1.78	2.60	12.59	0.87	----	----	19.66	2.96	67.75	"
1.51	1.81	10.68	0.65	----	----	12.80	1.70	76.52	"
1.46	1.46	10.33	0.60	----	----	9.53	1.21	80.14	"
2.31	1.84	16.34	1.05	----	----	10.48	1.46	73.18	"
2.61	1.99	18.46	1.23	----	----	10.97	1.58	70.57	"
3.06	2.25	21.65	1.53	----	----	12.05	1.85	66.30	"
3.20	2.28	22.64	1.62	----	----	11.89	1.85	65.47	"
3.98	2.67	28.16	2.26	----	----	13.16	2.28	58.68	"
5.22	3.24	36.93	3.59	----	----	14.70	3.10	48.37	"
5.33	3.33	37.71	3.77	----	----	15.22	3.30	47.07	"
5.67	3.41	40.11	4.20	----	----	14.89	3.37	45.00	"
6.38	3.69	45.14	5.37	----	----	15.32	3.95	39.54	"
6.80	3.92	48.11	6.35	----	----	16.20	4.63	35.69	"
7.23	3.73	51.15	6.71	----	----	12.93	3.67	35.92	C
7.79	3.66	55.11	7.53	----	----	10.42	3.08	34.47	"
8.56	3.42	60.56	8.42	----	----	5.55	1.67	33.89	"
8.81	2.92	61.98	7.73	0.28	0.13	----	----	37.74	D
7.14	2.07	43.94	4.07	5.21	1.82	----	----	50.85	"
7.18	2.09	44.36	4.11	4.88	1.71	----	----	50.83	"
9.19	0.48	10.18	1.03	43.48	16.72	----	----	46.34	"
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AUXILIARY INFORMATION									
METHOD/APPARATUS/PROCEDURE:					SOURCE AND PURITY OF MATERIALS:				
Bottles containing various amounts of phosphoric acid and potassium hydroxide in solution and in contact with a solid phase were placed in a thermostat and allowed to rotate until equilibrium was established. Phosphorus was analyzed according to ref. (1) and potassium was determined as $K_2[PtCl_6]$ .					No information is given.				
ESTIMATED ERROR:					No information is given.				
REFERENCES:					1. Treadwell, F.P.; Hall, W.T. <i>Analytical Chemistry</i> , Vol. II, <u>1913</u> , p. 434.				

<b>COMPONENTS:</b> (1) Tripotassium phosphate; K <sub>3</sub> PO <sub>4</sub> ; [7778-53-2] (2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2] (3) Potassium hydroxide; KOH; [1310-58-3] (4) Water; H <sub>2</sub> O; [7732-18-5]	<b>ORIGINAL MEASUREMENTS:</b> Parker, E.G. <i>J. Phys. Chem.</i> <u>1914</u> , <i>18</i> , 653-61.
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## EXPERIMENTAL VALUES cont'd:

Solubility in the KOH-H<sub>3</sub>PO<sub>4</sub>-H<sub>2</sub>O system at 25°C.

K <sup>+</sup> conc <sup>b</sup>	PO <sub>4</sub> <sup>3-</sup> conc <sup>b</sup>	K <sub>3</sub> PO <sub>4</sub> <sup>a</sup>		KOH <sup>a</sup>		H <sub>3</sub> PO <sub>4</sub> <sup>a</sup>		H <sub>2</sub> O <sup>a</sup> mass%	solid phase <sup>c</sup>
		mass%	mol/kg	mass%	mol/kg	mass%	mol/kg		
9.23	0.46	9.76	0.99	44.04	16.99	----	----	46.20	D
9.41	0.38	8.06	0.83	46.40	18.16	----	----	45.54	"
9.79	0.23	4.88	0.52	51.06	20.65	----	----	44.06	"
9.80	0.24	5.09	0.54	50.94	20.65	----	----	43.97	"
9.48	0.32	6.79	0.70	47.80	18.76	----	----	45.41	"
9.76	0.24	5.09	0.54	50.72	20.46	----	----	44.21	E
9.76	0.22	4.67	0.49	51.06	20.55	----	----	44.27	"
9.77	0.12	2.54	0.26	52.79	21.07	----	----	44.67	"

<sup>a</sup>All these values were calculated by the compiler.

<sup>b</sup>The concentration unit is: mol/1000 g of the solution.

<sup>c</sup>The solid phases are: A = KH<sub>2</sub>PO<sub>4</sub>·H<sub>3</sub>PO<sub>4</sub>; B = KH<sub>2</sub>PO<sub>4</sub>; C = K<sub>3</sub>PO<sub>4</sub>; D = K<sub>3</sub>PO<sub>4</sub>·3H<sub>2</sub>O;

E = KOH·2H<sub>2</sub>O.

COMPONENTS:		ORIGINAL MEASUREMENTS:						
(1) Tripotassium phosphate; K <sub>3</sub> PO <sub>4</sub> ; [7778-53-2]		Jänecke, E.						
(2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2]		Z. Phys. Chem. <u>1927</u> , 127, 71-92.						
(3) Potassium hydroxide; KOH; [1310-58-3]								
(4) Water; H <sub>2</sub> O; [7732-18-5]								
VARIABLES:		PREPARED BY:						
Composition and temperature.		J. Eysseltová						
EXPERIMENTAL VALUES:								
Solubility in the K <sub>3</sub> PO <sub>4</sub> -H <sub>3</sub> PO <sub>4</sub> -KOH-H <sub>2</sub> O system.								
K <sub>2</sub> O	H <sub>2</sub> O	K <sub>3</sub> PO <sub>4</sub> <sup>b</sup>		KOH <sup>b</sup>		H <sub>3</sub> PO <sub>4</sub> <sup>b</sup>		H <sub>2</sub> O <sup>b</sup>
conc <sup>a</sup>	conc <sup>a</sup>	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg	mass%
temp. = 0°C.								
96.0	107.0	5.77	0.62	50.66	20.73	----	----	43.61
90.5	146.0	11.55	1.01	34.66	11.48	----	----	53.83
86.5	156.0	15.77	1.31	27.74	8.75	----	----	56.49
82.2	173.0	19.50	1.52	20.40	6.05	----	----	60.10
79.5	171.0	22.62	1.76	17.00	5.02	----	----	60.38
76.3	153.0	28.01	2.26	13.71	4.19	----	----	58.28
73.5	153.0	31.32	2.50	9.76	2.95	----	----	58.92
70.8	160.0	33.59	2.61	5.80	1.70	----	----	60.61
68.5	153.0	37.24	2.92	2.72	0.80	----	----	60.04
66.5	152.0	39.66	3.10	----	----	0.07	0.01	60.27
63.9	147.0	38.88	3.11	----	----	2.25	0.39	58.87
61.0	104.0	44.94	4.28	----	----	5.67	1.17	49.39
58.5	82.0	48.31	5.35	----	----	9.21	2.21	42.48
56.0	97.1	42.70	4.35	----	----	11.13	2.46	46.17
52.4	92.0	41.02	4.42	----	----	15.32	3.58	43.66
50.5	219.0	23.79	1.70	----	----	10.45	1.62	65.76
48.3	363.0	15.68	0.97	----	----	8.19	1.09	76.13
39.8	460.0	10.68	0.63	----	----	9.91	1.27	79.41
33.0	280.0	13.05	0.89	----	----	18.32	2.72	68.63
30.0	260.0	12.52	0.88	----	----	21.07	3.23	66.41
25.0	63.0	23.05	4.51	----	----	52.90	22.45	24.05
24.7	172.0	13.64	1.18	----	----	31.93	5.98	54.43
19.5	80.0	16.28	2.60	----	----	54.24	18.28	29.48
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AUXILIARY INFORMATION								
METHOD/APPARATUS/PROCEDURE:					SOURCE AND PURITY OF MATERIALS:			
No information is given.					No information is given.			
					ESTIMATED ERROR:			
					No information is given.			
					REFERENCES:			

## COMPONENTS:

- (1) Tripotassium phosphate;  $K_3PO_4$ ; [7778-53-2]  
 (2) Phosphoric acid;  $H_3PO_4$ ; [7664-38-2]  
 (3) Potassium hydroxide; KOH; [1310-58-3]  
 (4) Water;  $H_2O$ ; [7732-18-5]

## ORIGINAL MEASUREMENTS:

Jänecke, E.  
 Z. Phys. Chem. 1927, 127, 71-92.

## EXPERIMENTAL VALUES cont'd:

Solubility in the  $K_3PO_4-H_3PO_4-KOH-H_2O$  system.

$K_2O$ conc <sup>a</sup>	$H_2O$ conc <sup>a</sup>	$K_3PO_4$ <sup>b</sup>		KOH <sup>b</sup>		$H_3PO_4$ <sup>b</sup>		$H_2O$ <sup>b</sup> mass%
		mass%	mol/kg	mass%	mol/kg	mass%	mol/kg	
temp. = 0°C.								
13.1	131.0	8.52	0.92	----	----	48.01	11.27	43.47
10.0	44.0	10.43	6.08	----	----	81.48	102.97	8.09
2.4	73.5	2.07	0.46	----	----	76.71	36.91	30.22
temp. = 25°C.								
96.0	97.0	6.07	0.70	53.23	23.31	----	----	40.70
90.5	98.0	14.35	1.58	43.07	18.02	----	----	42.58
86.5	102.0	19.98	2.09	35.16	13.97	----	----	44.86
82.2	130.0	23.14	2.07	24.22	8.20	----	----	52.64
79.5	121.0	26.54	2.33	19.95	6.64	----	----	53.51
76.3	119.0	32.36	2.94	15.83	5.45	----	----	51.81
73.5	127.0	34.91	3.03	10.88	3.57	----	----	54.21
70.8	118.0	40.06	3.55	6.92	2.32	----	----	53.02
68.5	119.0	43.02	3.76	3.14	1.04	----	----	53.84
66.5	117.5	45.95	4.01	----	----	0.08	0.01	53.97
63.9	101.5	47.66	4.53	----	----	2.76	0.56	49.58
61.0	80.2	50.88	5.61	----	----	6.42	1.53	42.70
58.5	82.0	48.31	5.35	----	----	9.21	2.21	42.48
56.0	76.0	47.82	5.67	----	----	12.47	3.20	39.71
52.4	88.0	41.89	4.64	----	----	15.64	3.76	22.47
50.5	159.0	29.30	2.38	----	----	12.87	2.27	57.83
48.3	292.0	18.52	1.21	----	----	9.67	1.37	71.81
39.8	435.0	11.18	0.67	----	----	10.38	1.35	78.42
33.0	249.0	14.21	1.01	----	----	19.95	3.09	65.84
30.0	185.0	15.82	1.29	----	----	26.62	4.71	57.56
25.0	59.0	23.63	5.03	----	----	54.23	25.00	22.14
24.7	121.0	16.79	1.80	----	----	39.30	9.13	43.91
19.5	58.0	18.55	4.44	----	----	61.79	32.09	19.66
13.1	92.0	10.25	1.51	----	----	57.76	18.43	31.99
10.0	44.0	10.43	6.08	----	----	81.48	102.87	12.44
2.4	47.8	2.44	1.53	----	----	90.05	122.44	7.51

<sup>a</sup>The concentration unit is: g/100 g of  $K_2O + P_2O_5$ .

<sup>b</sup>These concentrations were calculated by the compiler.

<b>COMPONENTS:</b>						<b>ORIGINAL MEASUREMENTS:</b>			
(1) Potassium dihydrogenphosphate; $KH_2PO_4$ ; [7778-77-0]						Krasil'shtschikov, A.I. Izv. In-ta Fiz.-khim. An. 1933, 6, 159-68.			
(2) Potassium hydroxide, KOH; [1310-58-3]									
(3) Phosphoric acid; $H_3PO_4$ ; [7664-38-2]									
(4) Water; $H_2O$ ; [7732-18-5]									
<b>VARIABLES:</b>						<b>PREPARED BY:</b>			
Temperature and composition.						J. Eysseltová			
<b>EXPERIMENTAL VALUES:</b>									
Part 1. The following data are given in the paper.									
soln. no.	$t/^\circ C$	density $g/cm^3$	$K_2O$ concn. <sup>a</sup>	$K_2O$ concn. <sup>b</sup>	$K_2O$ concn. <sup>c</sup>	$P_2O_5$ concn. <sup>a</sup>	$P_2O_5$ concn. <sup>b</sup>	$P_2O_5$ concn. <sup>c</sup>	$H_2O$ concn. <sup>c</sup>
1	0	1.131	14.5	6.47	44.2	12.1	8.16	55.8	583.6
2	0	1.101	10.9	5.01	41.2	10.3	7.16	55.8	721.6
3	0	1.094	9.44	4.39	39.85	9.44	6.62	60.15	808.2
4	0	1.096	9.6	4.44	38.9	10.0	6.97	61.1	776.4
5	0	1.102	9.9	4.57	37.5	11.0	7.63	62.5	719.6
6	0	1.157	12.4	5.30	28.8	20.4	13.10	71.2	443.5
7	25	1.247	32.9	12.5	46.0	25.5	14.65	54.0	268.3
8	25	1.193	23.5	9.63	43.8	20.1	12.35	56.2	355.0
9	25	1.176	20.3	8.45	42.6	18.0	11.41	57.4	403.6
10	25	1.157	17.9	7.65	41.2	17.1	10.90	58.8	439.1
11	25	1.151	16.6	7.17	40.5	16.2	10.55	59.5	464.3
12	25	1.148	16.0	6.95	40.2	15.9	10.34	59.8	478.4
13	25	1.147	15.9	6.89	39.85	15.9	10.40	60.15	478.5
14	25	1.148	15.9	6.88	39.5	16.1	10.56	60.5	473.4
15	25	1.152	16.5	7.03	39.2	16.9	10.92	60.8	467.1
16	25	1.154	16.8	7.13	38.8	17.4	11.26	61.2	443.7
17	25	1.160	16.8	7.18	38.2	18.2	11.63	61.8	431.6
18	25	1.162	16.9	7.18	37.5	18.7	11.95	62.5	422.8
19	25	1.168	17.3	7.21	36.3	20.0	12.65	63.7	403.6
20	25	1.206	18.8	7.56	32.5	26.1	15.70	67.5	330.0
21	25	1.242	21.9	8.30	30.1	33.9	19.30	69.9	262.3
22	50		45.7	12.68	27.2	80.8	33.96	72.8	114.4
23	50		36.0	11.85	32.1	50.6	25.10	67.9	170.7
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<b>AUXILIARY INFORMATION</b>									
<b>METHOD/APPARATUS/PROCEDURE:</b>						<b>SOURCE AND PURITY OF MATERIALS:</b>			
The mixtures were allowed to equilibrate for 12-15 hours in a water thermostat. The phosphorus content was determined gravimetrically as $Mg_2P_2O_7$ , the hydrogen or hydroxide ion content was determined by titration using methylorange as indicator.						Kahlbaum $KH_2PO_4$ was used. No other information is given.			
						<b>ESTIMATED ERROR:</b>			
						The temperature was controlled to within $\pm 0.1$ K.			
<b>REFERENCES:</b>									

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Potassium dihydrogenphosphate; KH <sub>2</sub> PO <sub>4</sub> ; [7778-77-0]	Krasil'shtschikov, A.I.
(2) Potassium hydroxide; KOH; [1310-58-3]	Izv. In-ta Fiz.-khim. An. <u>1933</u> , 6, 159-68
(3) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2]	
(4) Water; H <sub>2</sub> O; [7732-18-5]	

## EXPERIMENTAL VALUES cont'd:

Part 1. The following data are given in the paper.

soln. no.	t/°C	density g/cm <sup>3</sup>	K <sub>2</sub> O			P <sub>2</sub> O <sub>5</sub>			H <sub>2</sub> O
			concn. <sup>a</sup>	concn. <sup>b</sup>	concn. <sup>c</sup>	concn. <sup>a</sup>	concn. <sup>b</sup>	concn. <sup>c</sup>	concn. <sup>c</sup>
24	50		30.5	11.0	35.9	36.2	19.70	64.1	225.8
25	50		28.6	10.78	39.0	29.6	16.84	61.0	262.1
26	50		27.7	10.50	38.9	28.6	16.50	61.1	270.3
27	50		25.9	10.12	39.5	26.4	15.53	60.5	289.9
28	50		25.8	10.09	39.85	25.8	15.22	60.15	295.1
29	50		28.6	10.91	40.6	27.6	15.95	59.4	272.4
30	50		32.0	11.99	42.2	29.0	16.41	57.8	252.1
31	50		125.0	28.69	51.2	79.1	27.37	48.8	78.4

<sup>a</sup>The concentration unit is: mol/1000 mol H<sub>2</sub>O.

<sup>b</sup>The concentration unit is: g/100 g of solution.

<sup>c</sup>The concentration unit is: g/100 g of oxides.

Part 2. The compiler has recalculated the data in Part 1 to give the following values.

soln. no.	t/°C	KH <sub>2</sub> PO <sub>4</sub>		H <sub>3</sub> PO <sub>4</sub>		KOH	
		mass%	mol/kg	mass%	mol/kg	mass%	mol/kg
1	0	15.65	1.363	----	----	0.013	0.002
2	0	13.73	1.169	----	----	0.003	0.000
3	0	12.68	1.067	0.006	0.000	----	----
4	0	12.83	1.086	0.385	0.045	----	----
5	0	13.21	1.131	1.03	0.122	----	----
6	0	15.31	1.449	7.06	0.928	----	----
7	25	28.09	2.871	----	----	0.035	0.008
8	25	23.68	2.280	----	----	0.018	0.004
9	25	21.88	2.056	----	----	0.011	0.002
10	25	20.90	1.941	----	----	0.005	0.001
11	25	20.23	1.863	----	----	0.002	0.000
12	25	19.83	1.817	----	----	0.001	0.000
13	25	19.91	1.827	0.024	0.003	----	----
14	25	19.88	1.829	0.265	0.033	----	----
15	25	20.31	1.883	0.45	0.058	----	----
16	25	20.60	1.923	0.712	0.092	----	----
17	25	20.75	1.962	1.12	0.146	----	----
18	25	20.75	1.962	1.56	0.205	----	----
19	25	20.83	1.995	2.46	0.327	----	----
20	25	21.85	2.222	5.95	0.840	----	----
21	25	23.98	2.644	9.38	1.436	----	----
22	50	36.64	6.28	20.51	4.88	----	----
23	50	34.24	4.51	10.00	1.83	----	----
24	50	31.79	3.65	4.31	0.689	----	----
25	50	31.15	3.36	0.82	0.123	----	----
26	50	30.34	3.24	0.94	0.139	----	----
27	50	29.24	3.05	0.39	0.056	----	----
28	50	29.15	3.04	0.44	0.063	----	----
29	50	30.59	3.24	----	----	0.004	0.001
30	50	31.45	3.37	----	----	0.013	0.003
31	50	52.49	8.14	----	----	0.13	0.050

COMPONENTS:		ORIGINAL MEASUREMENTS:					
(1) Tripotassium phosphate; $K_3PO_4$ ; [7778-53-2] (2) Phosphoric acid; $H_3PO_4$ ; [7664-38-2] (3) Potassium hydroxide; KOH; [1310-58-3] (4) Water; $H_2O$ ; [7732-18-5]		1. Berg, A.G. <i>Izv. Akad. Nauk SSSR</i> <u>1933</u> , 167-82. 2. Berg, A.G. <i>Izv. Akad. Nauk SSSR</i> <u>1938</u> , 147-60.					
VARIABLES:		PREPARED BY:					
Composition at 25°C.		J. Eysseltová					
EXPERIMENTAL VALUES:							
Part 1. Solubility isotherm in the $K_3PO_4-H_3PO_4-KOH-H_2O$ system at 25°C.							
soln. no.	$K_2O$		$P_2O_5$		$H_2O$		solid phase <sup>a</sup>
	mass%	mol%	mass%	mol%	mass%	mol%	
1	47.25	14.62	----	----	52.72	83.38	A1, A2(1)
2	45.51	13.78	----	----	54.49	86.22	A2
3	47.49	17.92	1.37	0.74	41.14	81.34	A1 + B3
4	46.18	14.44	1.73	0.36	52.09	85.20	B3, A1(1)
5	45.92	14.32	1.78	0.37	52.30	85.31	" "
6	45.90	14.28	1.86	0.38	52.24	85.34	A2 + B3
7	45.75	14.25	1.85	0.38	52.40	85.37	B3(1)
							A2 + B3
8	43.20	13.37	3.75	0.77	53.05	85.86	B3
9	41.69	13.65	9.04	1.97	49.27	84.38	B3
10	41.53	13.67	9.52	2.08	48.95	84.25	B3 + B7
11	41.67	13.67	9.61	2.11	48.72	84.13	B3 <sup>b</sup>
12	41.63	14.20	11.78	2.67	46.59	83.13	"
13	41.55	14.55	13.51	3.14	44.94	82.31	"
14	41.50	14.78	14.56	3.36	43.94	81.86	"
15	41.70	15.03	15.19	3.67	43.11	81.30	"
16	41.58	14.98	15.23	3.67	43.19	81.35	"
17	41.56	15.03	15.45	3.70	42.99	81.27	"
18	41.87	15.49	16.54	4.06	41.59	80.45	"
19	42.01	15.81	17.44	4.39	40.55	79.80	"
20	42.12	15.95	17.69	4.45	40.19	79.60	"
21	42.44	17.08	20.78	5.54	36.78	77.38	"
(continued next page)							
AUXILIARY INFORMATION							
METHOD/APPARATUS/PROCEDURE:				SOURCE AND PURITY OF MATERIALS:			
<p>The isothermal method was used. The mixtures were equilibrated in a water thermostat by agitation (900 rpm) for at least 20 hours. The solid and liquid phases were separated from each other by centrifuging at 1500-2000 rpm. The potassium content was determined as <math>KClO_4</math>, the phosphorus content as <math>Mg_2P_2O_7</math>, and the water content by difference. The nature of the solid phases was determined microscopically and by the use of Schreinemakers' method.</p>				<p>Kahlbaum reagent grade KOH was used. The <math>KH_2PO_4</math> was recrystallized two or three times. The <math>H_3PO_4</math> was imported and had a content of 90%.</p>			
				ESTIMATED ERROR:			
				<p>The temperature was kept constant to within <math>\pm 0.05</math> K. For further information see the critical evaluation.</p>			
				REFERENCES:			

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Tripotassium phosphate; K <sub>3</sub> PO <sub>4</sub> ; [7778-53-2]	1. Berg. A.G. Izv. Akad. Nauk SSSR <u>1933</u> , 167-82.
(2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2]	2. Berg. A.G. Izv. Akad. Nauk SSSR <u>1938</u> , 147-60.
(3) Potassium hydroxide; KOH; (1310-58-3)	
(4) Water; H <sub>2</sub> O; [7732-18-5]	

## EXPERIMENTAL VALUES cont'd:

Part 1. Solubility isotherm in the K<sub>3</sub>PO<sub>4</sub>-H<sub>3</sub>PO<sub>4</sub>-KOH-H<sub>2</sub>O system at 25°C.

soln. no.	K <sub>2</sub> O		P <sub>2</sub> O <sub>5</sub>		H <sub>2</sub> O		solid phase <sup>a</sup>
	mass%	mol%	mass%	mol%	mass%	mol%	
22	43.34	19.93	26.75	8.16	29.91	71.91	B3 + C
23	41.53	13.67	9.52	2.08	48.95	84.25	B3 + B7
24	41.50	13.66	9.57	2.10	48.93	84.24	B3 + B7
25	37.18	11.32	8.15	1.65	54.67	87.03	B7
26	34.39	10.51	10.99	2.23	54.62	87.26	"
27	34.06	11.25	16.70	3.66	49.21	85.09	"
28	39.42	16.03	24.17	6.52	36.41	77.45	B7 + C3
29	41.48	17.99	25.62	7.37	32.90	74.64	B7 <sup>b</sup>
30	41.64	18.71	27.21	8.10	31.15	73.19	C <sup>c</sup>
31	41.07	18.35	27.46	8.14	31.47	73.51	"
32	40.40	----	28.12	----	31.48	----	C <sup>b</sup>
33	40.22	17.80	27.79	8.16	31.99	74.04	C <sup>c</sup>
34	37.59	16.57	30.03	8.78	32.39	74.65	"
35	37.20	16.51	30.72	9.04	32.08	74.45	"
36	36.96	16.31	30.65	8.96	32.39	74.43	"
37	41.90	18.06	24.89	7.11	32.21	74.83	C3 <sup>c</sup>
38	40.33	16.81	24.62	6.80	35.05	76.39	"
39	36.69	14.22	24.37	6.28	38.94	79.45	C3 <sup>d</sup>
40	34.15	13.03	25.48	6.45	40.37	80.52	"
41	34.05	12.98	25.52	6.45	40.43	80.57	"
42	34.22	13.19	26.02	6.69	39.76	80.12	C3
43	34.13	13.22	26.39	6.82	39.48	79.96	"
44	34.22	13.36	26.90	7.26	38.88	79.38	"
45	34.55	13.76	27.57	7.32	37.88	78.92	"
46	34.92	14.16	28.90	7.77	36.82	78.07	"
47	34.97	14.42	29.04	7.95	35.99	77.63	C3 + D <sup>b, e</sup>
48	37.46	16.29	29.47	8.50	33.07	75.21	D <sup>b</sup>
49	35.84	14.98	28.95	8.03	35.21	76.99	"
50	35.53	14.81	29.09	8.08	35.38	77.11	C3 + D <sup>b</sup>
51	35.51	14.76	28.96	7.99	35.53	77.25	C3(1) <sup>b</sup>
52	35.16	14.54	29.01	7.96	35.83	77.50	C3 + D
53	35.01	14.49	29.19	8.02	35.80	77.49	D
54	34.48	14.19	29.39	8.02	36.13	77.78	"
55	33.32	13.18	28.30	7.42	38.38	79.40	E
56	32.65	12.65	27.75	7.13	39.60	80.22	"
57	31.30	11.98	27.12	7.72	41.58	81.30	"
58	26.33	8.75	24.23	5.34	49.44	85.91	"
59	20.12	5.78	19.67	3.75	60.21	90.47	"
60	17.68	4.84	18.13	3.29	64.19	91.87	"
61	14.20	3.64	15.89	2.70	69.91	93.66	"
62	11.66	2.77	13.37	2.10	74.97	95.13	"
63	7.77	1.76	10.73	1.61	81.50	96.63	"
64	7.14	1.60	10.45	1.56	82.41	96.84	"
65	6.87	1.53	10.17	1.51	82.96	96.96	"
66	6.90	1.55	11.00	1.65	82.10	96.80	"
67	7.06	1.60	11.44	1.72	81.50	96.68	"
68	7.08	1.62	12.12	1.84	80.80	96.54	"
69	8.49	2.15	20.35	3.43	71.16	94.42	"
70	9.52	2.65	26.89	4.95	63.59	92.40	"
71	10.19	3.10	32.90	6.48	56.91	90.42	"
72	11.69	4.18	42.42	10.05	45.89	85.77	E <sup>d</sup>
73	12.50	4.84	46.38	11.91	41.12	83.25	"
74	12.68	5.01	47.40	12.43	39.92	82.56	E <sup>b</sup>
75	12.91	5.38	49.90	13.49	37.19	81.13	"
76	13.67	5.86	50.76	14.43	35.57	79.71	"
77	14.27	6.44	52.78	15.80	32.95	77.76	"
78	14.29	6.49	53.94	16.26	31.77	77.25	"
79	12.77	5.04	47.16	12.33	40.07	82.63	E + F

(continued next page)



COMPONENTS:				ORIGINAL MEASUREMENTS:			
(1) Tripotassium phosphate; $K_3PO_4$ ; [7778-53-2]				1. Berg, A.G. <i>Izv. Akad. Nauk SSSR</i> <u>1933</u> , 167-82.			
(2) Phosphoric acid; $H_3PO_4$ ; [7664-38-2]				2. Berg, A.G. <i>Izv. Akad. Nauk SSSR</i> <u>1938</u> , 147-60.			
(3) Potassium hydroxide; KOH; [1310-58-3]							
(4) Water; $H_2O$ ; [7732-18-5]							
EXPERIMENTAL VALUES cont'd:							
Part 1. Solubility isotherm in the $K_3PO_4-H_3PO_4-KOH-H_2O$ system at 25°C.							
soln. no.	$K_2O$		$P_2O_5$		$H_2O$		solid phase <sup>a</sup>
	mass%	mol%	mass%	mol%	mass%	mol%	
80	11.83	4.64	47.73	12.42	41.07	82.94	F
81	10.27	3.99	48.66	12.54	41.07	83.47	"
82	9.69	3.78	49.40	12.78	40.91	83.44	"
83	8.36	3.32	51.58	13.57	40.06	83.11	"
84	8.10	3.22	51.91	13.68	39.99	83.10	"
85	6.99	2.90	55.23	15.19	37.78	81.91	"
86	6.85	2.93	56.80	15.75	36.35	81.32	"
87	8.36	4.39	65.08	22.67	26.56	72.94	"
88	8.76	4.74	65.94	23.67	25.30	71.59	"
89	----	----	64.41	18.67	35.59	81.33	G
90	0.46	0.20	64.40	18.82	35.14	80.98	"
91	1.13	0.51	64.83	19.37	34.01	80.12	"
92	1.27	0.57	64.86	19.47	33.87	80.00	"
93	1.93	0.87	65.03	19.80	33.04	79.43	"
94	2.35	1.09	65.16	20.06	32.49	78.85	"
95	0.89	0.42	67.55	21.26	31.56	78.32	"
<sup>a</sup> The solid phases are: A1 = $KOH \cdot H_2O$ ; A2 = $KOH \cdot 2H_2O$ ; B3 = $K_3PO_4 \cdot 3H_2O$ ; B7 = $K_3PO_4 \cdot 7H_2O$ ; C = $K_2HPO_4$ ; C3 = $K_2HPO_4 \cdot 3H_2O$ ; D = $K_2HPO_4 \cdot KH_2PO_4 \cdot 3H_2O$ ; E = $KH_2PO_4$ ; F = $KH_5(PO_4)_2$ ; G = $2H_3PO_4 \cdot H_2O$ . All the data concerning these phases are from source paper (2). Those from source paper (1) are indicated by A(1), for example.							
<sup>b</sup> This is a metastable equilibrium.							
<sup>c</sup> This is given as stable in source paper (1), but as metastable in source paper (2).							
<sup>d</sup> This is given as metastable in source paper (1), but as stable in source paper (2).							
<sup>e</sup> These data appear in source paper (1) only.							
Part 2. The compiler has calculated the following results from the data given in Part 1 above.							
soln. no.	$K_3PO_4$		KOH		$H_3PO_4$		
	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg	
1	----	----	56.28	22.95	----	----	
2	----	----	54.21	21.10	----	----	
3	4.09	0.45	53.32	22.32	----	----	
4	5.17	0.55	50.91	20.66	----	----	
5	5.32	0.56	50.48	20.35	----	----	
6	5.38	0.58	51.60	21.38	----	----	
7	5.53	0.58	50.11	20.13	----	----	
8	11.21	1.14	42.57	16.41	----	----	
9	27.03	2.84	28.22	11.24	----	----	
10	28.47	3.00	26.89	10.74	----	----	
11	28.74	3.04	26.84	10.77	----	----	
12	35.23	3.84	21.65	8.95	----	----	
13	40.40	4.51	17.45	7.38	----	----	
14	43.54	4.93	14.90	6.39	----	----	
15	45.43	5.23	13.65	5.94	----	----	
16	45.55	5.22	13.41	5.82	----	----	
17	46.21	5.31	12.86	5.60	----	----	
18	49.47	5.84	10.65	4.76	----	----	
19	52.16	6.27	8.68	3.95	----	----	
20	52.91	6.41	8.22	3.77	----	----	

(continued next page)

## COMPONENTS:

- (1) Tripotassium phosphate; K<sub>3</sub>PO<sub>4</sub>; [7778-53-2]  
 (2) Phosphoric acid; H<sub>3</sub>PO<sub>4</sub>; [7664-38-2]  
 (3) Potassium hydroxide; KOH; [1310-58-3]  
 (4) Water; H<sub>2</sub>O; [7732-18-5]

## ORIGINAL MEASUREMENTS:

1. Berg, A.G. *Izv. Akad. Nauk SSSR* 1933, 167-82.  
 2. Berg, A.G. *Izv. Akad. Nauk SSSR* 1938, 147-60.

## EXPERIMENTAL VALUES cont'd:

Part 2. The compiler has calculated the following results from the data given in Part 1 above.

soln. no.	K <sub>3</sub> PO <sub>4</sub>		KOH		H <sub>3</sub> PO <sub>4</sub>	
	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg
21	62.15	8.00	1.27	0.62	----	----
22	65.14	10.98	----	----	6.90	2.52
23	28.47	3.00	26.89	10.74	----	----
24	28.62	3.02	26.74	10.67	----	----
25	24.37	2.26	24.96	8.78	----	----
26	32.87	2.96	14.90	5.08	----	----
27	49.95	4.79	0.96	0.35	----	----
28	59.25	8.04	----	----	6.06	1.78
29	62.35	9.47	----	----	6.63	2.18
30	62.59	10.27	----	----	8.71	3.10
31	61.73	10.09	----	----	9.45	3.35
32	60.72	10.05	----	----	10.83	3.88
33	60.45	9.80	----	----	10.50	3.69
34	56.50	9.47	----	----	15.41	5.60
35	55.91	9.59	----	----	16.64	6.18
36	55.55	9.43	----	----	16.71	6.14
37	62.98	9.36	----	----	5.33	1.71
38	60.62	8.56	----	----	6.05	1.85
39	55.15	7.09	----	----	8.22	2.29
40	51.33	6.50	----	----	11.52	3.16
41	51.18	6.48	----	----	11.64	3.19
42	51.43	6.50	----	----	12.21	3.43
43	51.30	6.73	----	----	12.79	3.63
44	51.43	6.89	----	----	13.43	3.90
45	51.93	7.20	----	----	14.12	4.24
46	52.49	7.77	----	----	15.70	5.04
47	52.56	7.84	----	----	15.86	5.12
48	56.30	9.16	----	----	14.73	5.19
49	53.87	8.18	----	----	15.14	4.98
50	53.40	8.10	----	----	15.54	5.11
51	53.37	8.04	----	----	15.38	5.02
52	52.85	7.91	----	----	15.69	5.09
53	52.62	7.91	----	----	16.04	5.22
54	51.82	7.75	----	----	16.69	5.41
55	50.08	6.95	----	----	15.98	4.80
56	49.07	6.56	----	----	15.69	4.54
57	47.04	5.96	----	----	15.75	4.32
58	39.57	4.12	----	----	15.21	3.43
59	30.24	2.51	----	----	13.21	2.38
60	26.57	2.06	----	----	12.78	2.15
61	21.34	1.51	----	----	12.10	1.85
62	17.52	1.14	----	----	10.38	1.46
63	11.67	0.69	----	----	9.43	1.22
64	10.73	0.63	----	----	9.48	1.21
65	10.32	0.60	----	----	9.28	1.17
66	10.37	0.61	----	----	10.40	1.34
67	10.61	0.63	----	----	10.90	1.41
68	10.64	0.64	----	----	11.82	1.55
69	12.76	0.92	----	----	22.21	3.48
70	14.31	1.22	----	----	30.53	5.64
71	15.31	1.55	----	----	38.36	8.45
72	17.57	2.59	----	----	50.47	16.11
73	18.78	3.42	----	----	55.37	21.87
74	19.06	3.69	----	----	56.66	23.81
75	19.40	4.42	----	----	59.95	29.64
76	20.54	5.13	----	----	60.61	32.83
77	21.45	6.49	----	----	62.98	41.30

(continued next page)

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Tripotassium phosphate; $K_3PO_4$ ; [7778-53-2]	1. Berg, A.G. <i>Izv. Akad. Nauk SSSR</i> <u>1933</u> , 167-82.
(2) Phosphoric acid; $H_3PO_4$ ; [7664-38-2]	2. Berg, A.G. <i>Izv. Akad. Nauk SSSR</i> <u>1938</u> , 147-60.
(3) Potassium hydroxide; KOH; [1310-58-3]	
(4) Water; $H_2O$ ; [7732-18-5]	

## EXPERIMENTAL VALUES cont'd:

Part 2. The compiler has calculated the following results from the data given in Part 1 above.

soln. no.	$K_3PO_4$		KOH		$H_3PO_4$	
	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg
78	21.48	7.25	----	----	64.57	47.26
79	19.19	3.68	----	----	56.26	23.40
80	17.78	3.41	----	----	57.70	24.02
81	15.43	2.96	----	----	60.07	25.02
82	14.56	2.86	----	----	61.49	26.21
83	12.56	2.68	----	----	65.42	30.33
84	12.17	2.63	----	----	66.06	30.97
85	10.50	2.73	----	----	71.41	40.31
86	10.29	3.02	----	----	73.68	46.92
87	12.56	17.58	----	----	84.06	254.88
88	13.16	33.45	----	----	84.97	467.70
89	----	----	----	----	88.93	82.01
90	0.69	0.30	----	----	88.60	84.45
91	1.69	0.83	----	----	88.73	94.61
92	1.90	0.95	----	----	88.67	96.11
93	2.90	1.58	----	----	88.45	104.40
94	3.53	2.04	----	----	88.34	110.94
95	1.33	1.04	----	----	92.65	157.36

<b>COMPONENTS:</b>				<b>ORIGINAL MEASUREMENTS:</b>			
(1) Tripotassium phosphate; K <sub>3</sub> PO <sub>4</sub> ; [7778-53-2]				1. Ravich, M.I. <i>Kaliy</i> <u>1936</u> , 10, 33-7.			
(2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2]				2. Ravich, M.I. <i>Izv. Akad. Nauk SSSR</i> <u>1938</u> , 167-76.			
(3) Potassium hydroxide; KOH; [1310-58-3]							
(4) Water; H <sub>2</sub> O; [7732-18-5]							
<b>VARIABLES:</b>				<b>PREPARED BY:</b>			
Composition at 0°C.				J. Eysseltová			
<b>EXPERIMENTAL VALUES:</b>							
Part 1. Solubility isotherm for the K <sub>3</sub> PO <sub>4</sub> -H <sub>3</sub> PO <sub>4</sub> -KOH-H <sub>2</sub> O system at 0°C.							
soln. no.	K <sub>2</sub> O		P <sub>2</sub> O <sub>5</sub>		H <sub>2</sub> O		solid <sub>a</sub> phase
	mass%	mol%	mass%	mol%	mass%	mol%	
1	----	----	57.17	14.48	42.83	85.52	A
2	1.64	0.65	58.01	15.31	40.35	84.04	"
3	3.78	1.58	58.81	16.37	37.78	82.05	"
4	4.89	2.12	59.57	17.15	35.54	80.73	"
5	5.06	2.20	59.50	17.16	35.44	80.64	A + B
6	5.75	2.67	62.01	19.09	32.24	78.24	B <sup>b</sup>
7	5.51	2.52	61.60	18.70	32.89	78.78	"
8	5.27	2.37	61.11	18.23	33.62	79.40	"
9	4.93	2.12	58.92	16.76	36.15	81.12	B
10	4.38	1.76	56.12	14.99	39.50	83.25	"
11	4.33	1.73	55.87	14.85	39.80	83.42	"
12	5.30	1.95	50.19	12.26	44.51	85.79	"
13	6.05	2.17	47.93	11.41	46.02	86.42	"
14	8.15	2.88	45.02	10.55	46.83	86.57	"
15	10.37	3.70	43.6	10.33	46.01	85.97	B + C
16	10.54	3.77	43.69	10.31	45.97	85.92	"
17	10.92	4.02	45.04	11.01	44.04	84.97	C <sup>b</sup>
18	10.22	3.53	41.76	9.58	48.02	86.69	C
19	8.93	2.78	35.92	7.42	55.15	89.80	"
20	8.17	2.39	32.30	6.28	59.53	91.33	"
21	6.85	1.75	22.48	3.81	70.67	99.44	"
22	5.75	1.35	15.75	2.42	78.50	96.23	"
(continued next page)							
<b>AUXILIARY INFORMATION</b>							
<b>METHOD/APPARATUS/PROCEDURE:</b>				<b>SOURCE AND PURITY OF MATERIALS:</b>			
The isothermal method was used. At least 24 hours with constant agitation was allowed for equilibration. For the more viscous solutions the time of equilibration was 3 days. The solid and liquid phases were separated from each other by centrifuging. Schreinemakers' method was used to identify the solid phases. K <sub>2</sub> O was determined by the chloride method (probably weighed as KCl--compiler), P <sub>2</sub> O <sub>5</sub> was determined by normal gravimetry but no details are given. The compiler supposes that water was determined by difference.				Kahlbaum reagent grade KOH was used. The H <sub>3</sub> PO <sub>4</sub> was imported. The KH <sub>2</sub> PO <sub>4</sub> was recrystallized twice. The K <sub>3</sub> PO <sub>4</sub> ·7H <sub>2</sub> O and K <sub>2</sub> HPO <sub>4</sub> ·3H <sub>2</sub> O were prepared by a method to be published by L.G. Berg.			
				<b>ESTIMATED ERROR:</b>			
				No information is given.			
				<b>REFERENCES:</b>			

COMPONENTS:				ORIGINAL MEASUREMENTS:			
(1) Tripotassium phosphate; K <sub>3</sub> PO <sub>4</sub> ; [7778-53-2]				1. Ravich, M.I. <i>Kaliy</i> 1936, 10, 33-7.			
(2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2]				2. Ravich, M.I. <i>Izv. Akad. Nauk SSSR</i> 1938, 167-76.			
(3) Potassium hydroxide; KOH [1310-58-3]							
(4) Water; H <sub>2</sub> O; [7732-18-5]							
EXPERIMENTAL VALUES cont'd:							
Part 1. Solubility isotherm for the K <sub>3</sub> PO <sub>4</sub> -H <sub>3</sub> PO <sub>4</sub> -KOH-H <sub>2</sub> O system at 0°C.							
soln. no.	K <sub>2</sub> O		P <sub>2</sub> O <sub>5</sub>		H <sub>2</sub> O		solid phase <sup>a</sup>
	mass%	mol%	mass%	mol%	mass%	mol%	
23	4.89	1.07	9.75	1.41	85.36	97.52	C
24	4.41	0.93	6.66	0.93	88.93	98.14	"
25	6.35	1.38	8.05	1.16	85.60	97.46	"
26	8.50	1.92	9.80	1.49	81.70	96.59	"
27	15.18	3.89	15.10	2.57	69.72	93.54	"
28	16.20	4.24	15.98	2.78	67.82	92.98	"
29	21.18	6.20	19.86	3.84	58.96	89.96	"
30	22.49	6.72	20.45	4.05	57.06	89.23	"
31	27.10	9.06	24.00	5.33	48.90	85.61	"
32	27.63	9.31	23.97	5.36	48.40	85.33	C + F <sup>c</sup>
33	29.24	10.29	25.23	5.89	45.53	83.82	?
34	30.54	11.04	25.69	6.16	43.77	82.80	?
35	31.50	11.54	25.58	6.14	42.92	82.32	D
36	31.03	11.00	24.05	5.66	44.92	83.84	"
37	30.86	10.78	23.26	5.39	45.88	83.83	"
38	32.70	11.54	22.23	5.20	45.07	83.26	"
39	34.38	12.38	21.90	5.23	43.72	87.39	D + E
40	34.49	12.47	22.06	5.29	43.45	82.24	"
41	27.05	8.91	23.01	5.03	49.94	86.06	F
42	25.94	8.15	20.80	4.33	53.26	87.52	"
43	24.91	7.48	18.82	3.76	56.27	88.76	"
44	26.92	8.30	18.60	3.80	54.48	87.90	"
45	29.35	9.36	18.72	3.96	51.93	86.68	"
46	31.29	10.41	19.75	4.36	48.96	85.23	"
47	32.62	11.07	19.80	4.36	47.58	84.48	E + F <sup>c</sup>
48	32.83	11.17	19.80	4.47	47.37	84.36	E
49	32.28	10.85	19.53	4.35	48.19	84.80	"
50	31.26	10.07	17.55	3.6	51.19	86.27	"
51	30.20	9.34	15.81	3.24	53.99	87.42	"
52	29.46	8.89	14.80	2.96	55.74	88.15	"
53	29.60	8.81	13.59	2.68	56.81	88.51	"
54	29.28	8.66	13.41	2.63	57.31	88.71	E <sup>c</sup>
55	29.18	8.46	11.98	2.30	58.84	89.24	"
56	29.20	7.97	7.25	1.32	63.55	90.71	E
57	29.16	7.90	7.76	1.22	64.08	90.88	"
58	33.19	8.89	2.12	0.38	64.69	90.73	"
59	38.16	10.78	1.74	0.33	60.10	88.89	"
60	40.16	11.68	2.11	0.41	57.73	87.91	"
61	41.82	12.52	2.70	0.54	55.48	86.94	E + G <sup>c</sup>
62	36.23	13.23	21.04	5.10	42.73	81.67	H <sup>b,c</sup>
63	33.65	11.40	18.74	4.21	47.61	84.39	"
64	32.65	10.69	17.45	3.79	49.90	85.52	"
65	31.70	10.02	15.92	3.34	52.38	86.64	"
66	31.18	9.58	14.40	2.93	54.42	87.49	"
67	31.40	9.39	12.26	2.43	56.34	88.18	"
68	31.52	9.41	12.00	2.38	56.48	88.21	"
69	32.24	9.60	11.16	2.20	56.60	88.20	"
70	36.82	11.61	11.00	2.30	52.18	86.09	"
71	41.75	15.44	16.67	4.09	41.58	80.47	I <sup>b,c</sup>
72	40.93	13.98	12.52	2.84	46.55	83.18	"
73	41.14	12.77	5.92	1.22	52.94	86.01	"
74	41.86	12.71	3.66	0.74	54.48	86.55	"
75	42.30	12.79	2.99	0.60	54.71	86.61	G
76	41.95	12.57	2.62	0.52	55.43	86.91	"
77	41.80	12.42	2.17	0.43	56.03	87.15	"
78	41.68	12.26	1.50	0.29	56.82	87.45	"
79	41.01	11.73	-----	-----	58.99	88.27	"

<sup>a</sup> The solid phases are: A = 2H<sub>3</sub>PO<sub>4</sub>·H<sub>2</sub>O; B = KH<sub>5</sub>(PO<sub>4</sub>)<sub>2</sub>; C = KH<sub>2</sub>PO<sub>4</sub>; D = K<sub>2</sub>HPO<sub>4</sub>·3H<sub>2</sub>O;  
<sup>b</sup> E = K<sub>3</sub>PO<sub>4</sub>·7H<sub>2</sub>O; F = K<sub>2</sub>HPO<sub>4</sub>·6H<sub>2</sub>O; G = KOH·2H<sub>2</sub>O; H = K<sub>3</sub>PO<sub>4</sub>·9H<sub>2</sub>O; I = K<sub>3</sub>PO<sub>4</sub>·3H<sub>2</sub>O.  
<sup>c</sup> Metastable equilibrium.

These data appear in source paper (2) only. (continued next page)

## COMPONENTS:

- (1) Tripotassium phosphate; K<sub>3</sub>PO<sub>4</sub>; [7778-53-2]  
 (2) Phosphoric acid; H<sub>3</sub>PO<sub>4</sub>; [7664-38-2]  
 (3) Potassium hydroxide; KOH; [1310-58-3]  
 (4) Water; H<sub>2</sub>O; [7732-18-5]

## ORIGINAL MEASUREMENTS:

1. Ravich, M.I. *Kaliy* 1936, 10, 33-7.  
 2. Ravich, M.I. *Izv. Akad. Nauk SSSR* 1938, 167-76.

## EXPERIMENTAL VALUES cont'd:

Part 2. The compiler has calculated the following values from the data given above in Part 1.

soln. no.	K <sub>3</sub> PO <sub>4</sub>		KOH		H <sub>3</sub> PO <sub>4</sub>	
	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg
1	----	----	----	----	78.93	38.24
2	2.46	0.62	----	----	78.96	43.38
3	5.68	1.70	----	----	78.62	51.12
4	7.35	2.51	----	----	78.86	58.37
5	7.60	2.60	----	----	78.64	58.39
6	8.64	4.18	----	----	81.63	85.70
7	8.28	3.72	----	----	81.23	79.09
8	7.92	3.28	----	----	80.72	72.57
9	7.41	2.38	----	----	77.93	54.28
10	6.58	1.63	----	----	74.45	40.06
11	6.50	1.58	----	----	74.14	39.10
12	7.96	1.42	----	----	65.62	25.36
13	9.09	1.48	----	----	61.98	21.87
14	12.25	1.84	----	----	56.51	18.46
15	15.58	2.33	----	----	53.01	17.23
16	15.84	2.37	----	----	52.74	17.13
17	16.41	2.66	----	----	54.62	19.24
18	15.36	2.12	----	----	50.57	15.15
19	13.42	1.46	----	----	43.40	10.26
20	12.28	1.18	----	----	38.80	8.09
21	10.29	0.76	----	----	26.69	4.23
22	8.64	0.55	----	----	17.76	2.46
23	7.35	0.41	----	----	10.07	1.24
24	6.62	0.35	----	----	6.14	0.71
25	9.54	0.53	----	----	6.71	0.81
26	12.77	0.75	----	----	7.64	0.97
27	22.81	1.60	----	----	10.33	1.57
28	24.35	1.76	----	----	10.84	1.70
29	31.83	2.70	----	----	12.74	2.34
30	33.80	2.97	----	----	12.65	2.41
31	40.73	4.27	----	----	14.36	3.26
32	41.53	4.39	----	----	13.95	3.19
33	43.95	4.99	----	----	14.57	3.58
34	45.90	5.43	----	----	14.31	3.67
35	47.34	5.69	----	----	13.49	3.51
36	46.64	5.27	----	----	11.70	2.86
37	46.38	5.09	----	----	10.73	2.55
38	49.15	5.40	----	----	8.03	1.91
39	51.67	5.80	----	----	6.41	1.56
40	51.84	5.87	----	----	6.56	1.61
41	40.66	4.13	----	----	13.02	2.87
42	38.99	3.65	----	----	10.74	2.18
43	37.44	3.27	----	----	8.72	1.65
44	40.46	3.63	----	----	7.03	1.36
45	44.11	4.12	----	----	5.51	1.11
46	47.03	4.67	----	----	5.59	1.20
47	49.03	4.73	----	----	4.73	1.04
48	49.34	5.04	----	----	4.59	1.01
49	48.52	4.87	----	----	4.60	1.00
50	46.98	4.38	----	----	2.57	0.52
51	45.39	3.98	----	----	0.90	0.17
52	44.28	3.74	----	----	0.02	0.00
53	40.64	3.39	3.03	0.95	----	----
54	40.11	3.32	3.07	0.96	----	----
55	35.83	2.91	6.34	1.95	----	----
56	21.68	1.68	17.59	5.16	----	----
57	23.21	1.80	16.33	4.81	----	----

(continued next page)

COMPONENTS:			ORIGINAL MEASUREMENTS:			
(1) Tripotassium phosphate; $K_3PO_4$ ; [7778-53-2]			1. Ravich, M.I. <i>Kaliy</i> <u>1936</u> , 10, 33-7.			
(2) Phosphoric acid; $H_3PO_4$ ; [7664-38-2]			2. Ravich, M.I. <i>Izv. Akad. Nauk SSSR</i> <u>1938</u> , 167-76.			
(3) Potassium hydroxide, KOH; [1310-58-3]						
(4) Water; $H_2O$ ; [7732-18-5]						
EXPERIMENTAL VALUES cont'd:						
Part 2. The compiler has calculated the following values from the data given above in Part 1.						
soln. no.	$K_3PO_4$		KOH		$H_3PO_4$	
	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg
58	6.34	0.50	34.51	10.39	----	----
59	5.20	0.45	41.33	13.77	----	----
60	6.31	0.58	42.83	15.01	----	----
61	8.07	0.78	43.41	15.95	----	----
62	54.45	6.16	----	----	3.94	0.96
63	50.58	5.08	----	----	2.56	0.55
64	49.07	4.67	----	----	1.47	0.30
65	47.61	4.28	----	----	----	----
66	43.07	3.76	2.99	0.98	----	----
67	36.67	3.14	8.32	2.69	----	----
68	35.89	3.07	9.08	2.94	----	----
69	33.38	2.87	11.93	3.89	----	----
70	32.90	3.14	17.77	6.42	----	----
71	49.86	5.88	10.20	4.55	----	----
72	37.44	4.05	19.06	7.81	----	----
73	17.70	1.76	34.96	13.16	----	----
74	10.94	1.07	41.18	15.33	----	----
75	8.94	0.88	43.30	16.15	----	----
76	7.83	0.76	43.76	16.11	----	----
77	6.49	0.62	44.64	16.28	----	----
78	4.48	0.42	46.09	16.62	----	----
79	0.00	0.00	48.85	17.02	----	----

<b>COMPONENTS:</b> (1) Tripotassium phosphate; K <sub>3</sub> PO <sub>4</sub> ; [7778-53-2] (2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2] (3) Potassium hydroxide; KOH; [1310-58-3] (4) Water; H <sub>2</sub> O; [7732-18-5]				<b>ORIGINAL MEASUREMENTS:</b> Berg. A.G. Izv. Akad. Nauk SSSR 1938, 161-6.			
<b>VARIABLES:</b> Composition at 50°C.				<b>PREPARED BY:</b> J. Eysseltová			
<b>EXPERIMENTAL VALUES:</b> Part 1. The solubility isotherm in the K <sub>3</sub> PO <sub>4</sub> -H <sub>3</sub> PO <sub>4</sub> -KOH-H <sub>2</sub> O system at 50°C.							
soln. no.	K <sub>2</sub> O		P <sub>2</sub> O <sub>5</sub>		H <sub>2</sub> O		solid phase <sup>a</sup>
	mass%	mol%	mass%	mol%	mass%	mol%	
1	48.43	15.42	----	----	51.17	84.57	A
2	49.44	16.60	2.13	0.47	48.43	82.93	A + <sub>b</sub> B
3	50.19	16.80	2.60	0.58	47.21	82.62	B
4	46.60	14.85	2.64	0.56	50.76	84.59	B
5	46.50	14.87	2.95	0.63	50.55	84.51	"
6	44.88	14.40	4.70	1.00	50.42	84.60	"
7	43.12	14.14	7.80	1.70	49.08	84.16	"
8	42.35	14.74	12.36	2.85	45.29	82.41	"
9	42.30	15.52	15.64	3.80	42.06	80.68	"
10	42.25	17.03	21.07	5.63	36.68	77.34	"
11	42.89	18.33	23.55	6.67	33.56	75.00	"
12	43.80	19.85	25.64	7.71	30.56	72.44	B + C
13	42.39	18.90	26.14	7.73	31.47	73.37	C
14	41.72	18.66	26.92	7.99	31.36	73.35	"
15	41.39	18.38	26.87	7.92	31.74	73.70	"
16	40.98	18.29	27.49	8.14	31.53	73.57	"
17	40.84	18.26	27.59	8.18	31.47	73.56	"
18	40.01	17.68	27.90	8.18	32.09	74.14	"
19	39.68	17.63	28.48	8.39	31.84	73.98	"
20	39.73	17.71	28.59	8.45	31.68	73.84	"
21	39.52	17.55	28.59	8.42	31.89	74.03	"
22	39.18	17.38	28.86	8.49	31.96	74.13	"
23	38.98	17.38	29.29	8.86	31.73	73.96	C
24	38.72	17.30	29.64	8.78	31.64	73.92	"
(continued next page)							
<b>AUXILIARY INFORMATION</b>							
<b>METHOD/APPARATUS/PROCEDURE:</b> The isothermal method was used. At least 20 hours with agitation at 900 rpm was allowed for equilibration. The identity of the solid phase was determined microscopically and by the use of the Schreinemakers' method. The solid and liquid phases were separated from each other by centrifuging at 1500-2000 rpm. Potassium was determined as KClO <sub>4</sub> , phosphorus as Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> , and water by difference.				<b>SOURCE AND PURITY OF MATERIALS:</b> Kahlbaum reagent grade KOH was used. The KH <sub>2</sub> PO <sub>4</sub> was recrystallized two or three times. The phosphoric acid was imported and had a content of 90%.			
				<b>ESTIMATED ERROR:</b> The temperature was kept constant within 0.05 K. For additional information see the Critical Evaluation.			
				<b>REFERENCES:</b>			



COMPONENTS:				ORIGINAL MEASUREMENTS:			
(1) Tripotassium phosphate; $K_3PO_4$ ; [7778-53-2]				Berg, A.G.			
(2) Phosphoric acid; $H_3PO_4$ ; [7664-38-2]				Izv. Akad. Nauk SSSR 1938, 161-6.			
(3) Potassium hydroxide; KOH; [1310-58-3]							
(4) Water; $H_2O$ ; [7732-18-5]							
EXPERIMENTAL VALUES cont'd:							
Part 1. The solubility isotherm in the $K_3PO_4-H_3PO_4-KOH-H_2O$ system at 50°C.							
soln. no.	$K_2O$		$P_2O_5$		$H_2O$		solid phase <sup>a</sup>
	mass%	mol%	mass%	mol%	mass%	mol%	
25	38.70	17.41	30.00	8.95	31.30	73.64	metastable
26	38.12	17.36	31.13	9.41	30.75	73.23	C + D(?)
27	37.96	17.27	31.24	9.43	30.80	73.30	C + D(?)
28	37.97	17.49	31.79	9.71	30.24	72.80	C
29	38.50	17.12	29.60	8.73	31.90	74.15	E(?)
30	36.71	16.38	31.42	9.29	31.87	74.33	E(?) <sup>b</sup>
31	38.93	17.80	30.57	9.27	30.62	72.93	D(?) <sup>b</sup>
32	38.83	17.78	30.74	9.34	30.43	72.88	D(?) <sup>b</sup>
33	38.06	17.19	30.78	9.22	31.16	73.59	C + D(?)
34	36.65	16.23	31.02	9.12	32.23	74.65	D
35	36.61	16.28	31.38	9.26	32.01	74.46	"
36	35.69	15.77	31.91	9.36	32.40	74.87	"
37	35.77	15.94	31.10	9.19	32.13	74.87	F
38	35.58	15.45	31.16	8.98	33.28	75.57	"
39	35.54	15.47	31.30	9.04	33.16	75.49	"
40	35.35	15.38	31.44	9.07	33.21	75.55	"
41	34.00	14.12	30.30	8.35	35.70	77.53	"
42	33.79	13.89	29.93	8.16	36.28	77.95	"
43	33.70	13.91	30.25	8.28	36.05	77.81	"
44	32.80	13.19	29.69	7.92	37.51	78.89	"
45	31.80	12.44	29.08	7.54	39.12	80.02	"
46	27.91	9.88	26.78	6.28	45.31	83.84	F
47	25.60	8.54	25.20	5.58	49.20	85.88	"
48	25.25	8.34	24.80	5.43	49.95	86.23	"
49	21.78	6.66	22.71	4.61	55.51	88.73	"
50	12.56	3.20	17.01	2.88	70.43	93.92	"
51	10.63	2.60	15.31	2.49	74.06	94.91	"
52	10.06	2.45	15.15	2.45	74.79	95.11	"
53	10.15	2.47	15.30	2.45	74.55	95.08	"
54	10.32	2.53	15.56	2.53	74.12	94.94	"
55	10.48	2.64	17.87	2.99	71.65	94.37	"
56	10.71	2.75	19.42	3.31	69.87	93.34	"
57	11.11	3.09	25.51	4.71	63.38	92.20	"
58	12.03	3.61	30.40	6.05	57.57	90.34	"
59	12.25	3.77	31.94	6.51	55.82	89.72	"
60	12.96	4.52	39.74	9.20	47.30	86.28	"
61	13.22	4.71	40.85	9.66	45.93	85.63	"
62	14.21	6.02	49.71	13.98	36.08	80.00	"
63	14.30	6.09	49.87	14.09	35.83	79.82	"
64	14.34	6.27	51.15	14.83	34.51	78.90	G
65	9.65	4.25	55.85	16.30	34.51	79.45	"
66	9.53	4.18	55.72	16.19	34.75	79.63	"
67	8.84	3.59	57.92	17.45	33.24	78.96	"
68	8.71	3.95	58.17	17.50	33.12	78.55	"
69	8.68	3.50	60.24	16.13	38.08	80.37	"
70	9.10	4.56	62.48	20.75	28.52	74.69	"
71	10.05	5.60	65.93	24.38	24.02	70.02	"

<sup>a</sup>The solid phases are: A =  $KOH \cdot H_2O$ ; B =  $K_3PO_4 \cdot 3H_2O$ ; C =  $K_2HPO_4$ ; D =  $K_2HPO_4 \cdot KH_2PO_4 \cdot 2H_2O$ ; E =  $3K_2HPO_4 \cdot KH_2PO_4 \cdot 2H_2O$ ; F =  $KH_2PO_4$ ; G =  $KH_5(PO_4)_2$ .

<sup>b</sup>A metastable equilibrium.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Tripotassium phosphate; K <sub>3</sub> PO <sub>4</sub> ; [7778-53-2]	Berg, A.G.
(2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2]	Izv. Akad. Nauk SSSR <u>1938</u> , 161-6.
(3) Potassium hydroxide; KOH; [1310-58-3]	
(4) Water; H <sub>2</sub> O; [7732-18-5]	

## EXPERIMENTAL VALUES cont'd:

Part 2. The compiler has calculated the following values from the data given in Part 1 above.

soln. no.	K <sub>3</sub> PO <sub>4</sub>		KOH		H <sub>3</sub> PO <sub>4</sub>	
	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg
1	----	----	58.17	24.78	----	----
2	6.37	0.75	53.48	24.12	----	----
3	7.77	0.94	53.62	20.76	----	----
4	7.89	0.86	49.25	20.48	----	----
5	8.82	0.97	48.39	20.16	----	----
6	14.05	1.51	42.31	17.28	----	----
7	23.33	2.50	32.86	13.37	----	----
8	36.96	4.15	21.13	8.99	----	----
9	46.78	5.51	13.29	5.93	----	----
10	63.02	8.10	0.36	0.17	----	----
11	64.47	9.27	----	----	2.80	0.87
12	65.83	10.65	----	----	5.05	1.77
13	63.71	10.15	----	----	6.72	2.32
14	62.71	10.17	----	----	8.26	2.90
15	62.21	9.98	----	----	8.42	2.92
16	61.59	10.06	----	----	9.56	3.38
17	61.38	10.03	----	----	9.79	3.47
18	60.14	9.74	----	----	10.80	3.79
19	59.64	9.85	----	----	11.83	4.23
20	59.72	9.92	----	----	11.94	4.30
21	59.40	9.81	----	----	12.09	4.32
22	58.89	9.76	----	----	12.70	4.56
23	58.59	9.86	----	----	13.43	4.90
24	58.20	9.89	----	----	14.09	5.19
25	58.18	10.07	----	----	14.60	5.47
26	57.30	10.33	----	----	16.57	6.47
27	57.05	10.29	----	----	16.83	6.57
28	57.07	10.60	----	----	17.57	7.07
29	57.87	9.75	----	----	14.19	5.18
30	55.18	9.67	----	----	17.94	6.81
31	58.51	10.50	----	----	15.23	5.92
32	58.36	10.53	----	----	15.54	6.07
33	57.21	10.10	----	----	16.12	6.17
34	55.09	9.44	----	----	17.43	6.47
35	55.03	9.59	----	----	17.96	6.78
36	53.64	9.35	----	----	19.33	7.30
37	53.76	9.02	----	----	18.15	6.59
38	53.48	8.95	----	----	18.37	6.66
39	53.42	8.99	----	----	18.59	6.77
40	53.13	8.95	----	----	18.91	6.90
41	51.10	7.86	----	----	18.27	6.09
42	50.79	7.64	----	----	17.91	5.84
43	50.65	7.71	----	----	18.41	6.07
44	49.30	7.16	----	----	18.26	5.74
45	47.80	6.60	----	----	18.11	5.42
46	41.95	4.89	----	----	17.63	4.45
47	38.48	4.07	----	----	17.05	3.91
48	37.95	3.94	----	----	16.74	3.77
49	32.73	3.02	----	----	16.26	3.25
50	18.87	1.34	----	----	14.78	2.27
51	15.97	1.07	----	----	13.77	2.00
52	15.12	1.00	----	----	13.94	2.00
53	15.25	1.01	----	----	14.09	2.03
54	15.51	1.04	----	----	14.33	2.08
55	15.75	1.11	----	----	17.41	2.65
56	16.09	1.17	----	----	19.39	3.06
57	16.70	1.41	----	----	27.52	5.03
58	18.08	1.76	----	----	33.64	7.11

(continued next page)

COMPONENTS:				ORIGINAL MEASUREMENTS:			
(1) Tripotassium phosphate; $K_3PO_4$ ; [7778-53-2]				Berg, A.G.			
(2) Phosphoric acid; $H_3PO_4$ ; [7664-38-2]				Izv. Akad. Nauk SSSR <u>1938</u> , 161-6.			
(3) Potassium hydroxide; KOH; [1310-58-3]							
(4) Water; $H_2O$ ; [7732-18-5]							
EXPERIMENTAL VALUES cont'd:							
Part 2. The compiler has calculated the following values from the data given in Part 1 above.							
soln. no.	$K_3PO_4$		KOH		$H_3PO_4$		
	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg	
59	18.39	1.88	----	----	35.62	7.90	
60	19.48	2.65	----	----	45.89	13.52	
61	19.87	2.84	----	----	47.24	14.66	
62	21.35	5.06	----	----	58.79	30.22	
63	21.49	5.17	----	----	58.95	30.76	
64	21.55	5.71	----	----	60.69	34.88	
65	14.50	4.53	----	----	70.41	47.65	
66	14.32	4.39	----	----	70.33	46.78	
67	13.28	4.86	----	----	73.84	58.58	
68	13.09	4.88	----	----	74.28	60.04	
69	13.04	6.27	----	----	77.16	80.43	
70	13.67	10.13	----	----	79.96	128.37	
71	15.10	86.51	----	----	84.07	1042.9	

<b>COMPONENTS:</b> (1) Potassium dihydrogenphosphate; KH <sub>2</sub> PO <sub>4</sub> ; [7778-77-0] (2) Potassium hydroxide; KOH; [1310-58-3] (3) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2] (4) Water; H <sub>2</sub> O; [7732-18-5]		<b>ORIGINAL MEASUREMENTS:</b> Mýl. J.; Šolc. Z. Collection Czechoslov. Chem. Comm. <u>1960</u> , 25, 2414-8.						
<b>VARIABLES:</b> Temperature and composition		<b>PREPARED BY:</b> J. Eysseltová						
<b>EXPERIMENTAL VALUES:</b> Composition of saturated solutions in the KH <sub>2</sub> PO <sub>4</sub> -H <sub>3</sub> PO <sub>4</sub> -KOH-H <sub>2</sub> O system.								
K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	KH <sub>2</sub> PO <sub>4</sub> <sup>a</sup>		KOH <sup>a</sup>		H <sub>3</sub> PO <sub>4</sub> <sup>a</sup>		H <sub>2</sub> O <sup>a</sup>
mass%	mass%	mass%	mol/kg	mass%	mol/kg	mass%	mol/kg	mass%
temp = 25°C.								
10.0	12.4	23.78	1.18	2.11	0.25	----	----	74.11
12.19	13.65	26.17	1.37	3.73	0.47	----	----	70.09
16.7	16.65	31.93	1.91	6.73	0.98	----	----	61.34
24.25	21.7	41.61	3.28	11.73	2.24	----	----	46.65
6.85	10.4	19.79	0.91	----	----	0.11	0.01	80.10
7.79	13.85	22.51	1.11	----	----	2.92	0.20	74.58
8.78	18.75	25.37	1.39	----	----	7.62	0.58	67.01
8.97	23.18	25.92	1.57	----	----	13.34	1.12	60.74
9.84	30.6	28.43	2.10	----	----	21.78	2.23	49.79
10.86	37.6	31.38	2.93	----	----	29.32	3.81	39.30
11.55	41.85	33.37	3.73	----	----	33.75	5.24	32.87
9.9	51.3	28.61	4.97	----	----	50.23	12.11	21.16
6.3	59.8	18.20	5.42	----	----	69.46	28.73	12.33
(continued next page)								
<b>AUXILIARY INFORMATION</b>								
<b>METHOD/APPARATUS/PROCEDURE:</b> A modification of Toepler's method (1) was used.				<b>SOURCE AND PURITY OF MATERIALS:</b> Reagent grade materials were used.				
				<b>ESTIMATED ERROR:</b> No information is given.				
				<b>REFERENCES:</b> 1. Mýl, J.; Kvapil, J. Colln. Czechoslov. Chem. Commun. <u>1960</u> , 25, 194.				

COMPONENTS:				ORIGINAL MEASUREMENTS:				
(1) Potassium dihydrogenphosphate; KH <sub>2</sub> PO <sub>4</sub> ; [7778-77-0]				Mýl. J.; Šolc. Z.				
(2) Potassium hydroxide; KOH; [1310-58-3]				Collection Czechoslov. Chem. Comm. <u>1960</u> , 25, 2414-8.				
(3) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2]								
(4) Water; H <sub>2</sub> O; [7732-18-5]								
EXPERIMENTAL VALUES cont'd:								
Composition of saturated solutions in the KH <sub>2</sub> PO <sub>4</sub> -H <sub>3</sub> PO <sub>4</sub> -KOH-H <sub>2</sub> O system.								
K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	KH <sub>2</sub> PO <sub>4</sub> <sup>a</sup>		KOH <sup>a</sup>		H <sub>3</sub> PO <sub>4</sub> <sup>a</sup>		H <sub>2</sub> O <sup>a</sup>
		mass%	mol/kg	mass%	mol/kg	mass%	mol/kg	
temp = 30°C.								
10.2	12.9	24.74	1.24	1.95	0.24	----	----	73.31
12.5	14.21	27.25	1.45	3.66	0.47	----	----	69.09
17.5	17.22	33.02	2.03	7.23	1.08	----	----	59.75
24.4	22.0	42.19	3.34	11.44	2.20	----	----	46.37
7.15	10.8	20.66	0.96	----	----	0.04	0.00	79.30
8.4	14.6	24.27	1.22	----	----	2.68	0.19	73.04
9.35	19.5	27.02	1.52	----	----	7.47	0.58	65.51
9.5	23.8	27.45	1.70	----	----	13.10	1.12	59.45
10.37	30.8	29.96	2.24	----	----	20.95	2.18	49.08
11.3	37.8	32.65	3.10	----	----	28.68	3.78	38.67
11.9	42.0	34.39	3.90	----	----	33.23	5.24	32.38
10.3	51.0	29.76	5.14	----	----	49.00	11.76	21.25
6.76	59.9	19.53	6.07	----	----	68.64	29.62	11.82
temp = 40°C.								
10.8	14.2	27.23	1.41	1.64	0.21	----	----	71.13
13.3	15.6	29.91	1.65	3.51	0.47	----	----	66.57
18.1	18.5	35.48	2.26	6.94	1.07	----	----	57.59
24.5	22.6	43.34	3.51	11.32	2.22	----	----	45.34
8.43	12.7	24.35	1.18	0.00	0.00	----	----	75.65
9.4	16.15	27.16	1.42	----	----	2.74	0.20	70.10
10.45	20.95	30.20	1.77	----	----	7.18	0.59	62.62
10.5	25.0	30.34	1.96	----	----	12.67	1.13	56.99
11.4	31.8	32.94	2.58	----	----	20.19	2.20	46.87
12.1	38.3	34.96	3.44	----	----	27.71	3.79	37.33
12.6	42.4	36.41	4.28	----	----	32.33	5.28	31.26
8.68	59.3	22.16	7.00	----	----	66.20	29.02	11.64
temp = 50°C.								
11.55	15.8	30.30	1.63	1.27	0.16	----	----	68.43
14.3	17.25	33.08	1.91	3.40	0.48	----	----	63.52
18.7	19.7	37.78	2.50	6.70	1.08	----	----	55.52
9.77	14.8	28.23	1.45	----	----	0.11	0.01	71.66
10.5	17.75	30.34	1.66	----	----	2.66	0.20	67.00
11.56	22.4	33.40	2.05	----	----	6.88	0.59	59.72
11.69	26.25	33.78	2.28	----	----	11.92	1.12	54.30
12.4	32.7	35.83	2.94	----	----	19.35	2.20	44.82
13.1	38.9	37.85	3.90	----	----	26.45	3.78	35.69
13.42	42.6	38.78	4.70	----	----	30.90	5.20	30.23
8.68	59.3	25.08	8.30	----	----	63.82	29.34	11.10
<sup>a</sup> These values were calculated by the compiler.								

<b>COMPONENTS:</b> (1) Potassium dihydrogenphosphate; KH <sub>2</sub> PO <sub>4</sub> ; [7778-77-0] (2) Phosphoric acid; H <sub>3</sub> PO <sub>4</sub> ; [7664-38-2] (3) Potassium hydroxide; KOH; [1310-58-3] (4) Water; H <sub>2</sub> O; [7732-18-5]	<b>ORIGINAL MEASUREMENTS:</b> Punin, Yu.O.; Mirenkova, T.F.; Artamanova, O.I.; Ul'yanova, T.P. <i>Zh. Neorg. Khim.</i> <u>1975</u> , <i>20</i> , 2813-5.																																																																																						
<b>VARIABLES:</b> Temperature and composition.	<b>PREPARED BY:</b> J. Eysseltová																																																																																						
<b>EXPERIMENTAL VALUES:</b> <p>Parameters <math>a_i</math> of the equation: <math>c_t = a_0 + a_1 t + a_2 t^2 + \dots + a_5 t^5</math> were calculated and are given in the Table below. <math>c_t</math> is the concentration of the saturated solution (as g/100 g of solvent) at the temperature <math>t^\circ\text{C}</math>.</p> <table border="1" data-bbox="123 594 1195 907"> <thead> <tr> <th>solvent</th> <th>concn<sup>b</sup></th> <th><math>a_0</math></th> <th><math>a_1 \times 10</math></th> <th><math>a_2 \times 10^3</math></th> <th><math>a_3 \times 10^5</math></th> <th><math>a_4 \times 10^7</math></th> <th><math>a_5 \times 10^9</math></th> <th><math>\sigma^a</math> (g/100 g)</th> </tr> </thead> <tbody> <tr> <td>H<sub>2</sub>O</td> <td></td> <td>14.958</td> <td>2.881</td> <td>4.914</td> <td>1.826</td> <td>2.311</td> <td>0</td> <td>0.03</td> </tr> <tr> <td rowspan="2">H<sub>3</sub>PO<sub>4</sub></td> <td>1.72</td> <td>16.478</td> <td>2.229</td> <td>5.354</td> <td>0</td> <td>0</td> <td>0</td> <td>0.16</td> </tr> <tr> <td>5.00</td> <td>17.509</td> <td>3.008</td> <td>6.239</td> <td>6.051</td> <td>4.889</td> <td>0</td> <td>0.06</td> </tr> <tr> <td rowspan="2">"</td> <td>9.94</td> <td>20.184</td> <td>4.177</td> <td>1.906</td> <td>1.784</td> <td>0</td> <td>0</td> <td>0.13</td> </tr> <tr> <td>14.90</td> <td>32.498</td> <td>8.209</td> <td>64.574</td> <td>135.678</td> <td>137.658</td> <td>51.195</td> <td>0.16</td> </tr> <tr> <td rowspan="2">KOH</td> <td>2.00</td> <td>14.682</td> <td>12.533</td> <td>52.068</td> <td>147.490</td> <td>178.247</td> <td>80.992</td> <td>0.14</td> </tr> <tr> <td>4.92</td> <td>30.370</td> <td>2.826</td> <td>6.213</td> <td>6.207</td> <td>4.963</td> <td>0</td> <td>0.03</td> </tr> <tr> <td rowspan="2">"</td> <td>10.04</td> <td>48.563</td> <td>0.694</td> <td>15.135</td> <td>21.332</td> <td>13.776</td> <td>0</td> <td>0.08</td> </tr> <tr> <td>15.68</td> <td>68.154</td> <td>3.231</td> <td>38.031</td> <td>80.746</td> <td>84.653</td> <td>31.888</td> <td>0.08</td> </tr> </tbody> </table> <p><sup>a</sup>This is the mean quadratic error.  <sup>b</sup>The concentration unit is: g/100 g.</p>		solvent	concn <sup>b</sup>	$a_0$	$a_1 \times 10$	$a_2 \times 10^3$	$a_3 \times 10^5$	$a_4 \times 10^7$	$a_5 \times 10^9$	$\sigma^a$ (g/100 g)	H <sub>2</sub> O		14.958	2.881	4.914	1.826	2.311	0	0.03	H <sub>3</sub> PO <sub>4</sub>	1.72	16.478	2.229	5.354	0	0	0	0.16	5.00	17.509	3.008	6.239	6.051	4.889	0	0.06	"	9.94	20.184	4.177	1.906	1.784	0	0	0.13	14.90	32.498	8.209	64.574	135.678	137.658	51.195	0.16	KOH	2.00	14.682	12.533	52.068	147.490	178.247	80.992	0.14	4.92	30.370	2.826	6.213	6.207	4.963	0	0.03	"	10.04	48.563	0.694	15.135	21.332	13.776	0	0.08	15.68	68.154	3.231	38.031	80.746	84.653	31.888	0.08
solvent	concn <sup>b</sup>	$a_0$	$a_1 \times 10$	$a_2 \times 10^3$	$a_3 \times 10^5$	$a_4 \times 10^7$	$a_5 \times 10^9$	$\sigma^a$ (g/100 g)																																																																															
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<b>AUXILIARY INFORMATION</b>																																																																																							
<b>METHOD/APPARATUS/PROCEDURE:</b> Nine solubility polytherms were studied. They differed from each other in the composition of the solvent. The pH of each solvent was measured. For each polytherm, 10-14 samples were prepared by precise weighing. The saturation temperature of each sample was determined by using an apparatus constructed for measuring crystal growth rate (1).	<b>SOURCE AND PURITY OF MATERIALS:</b> All the components were of a "special purity" grade.																																																																																						
<b>ESTIMATED ERROR:</b> The accuracy of the saturation temperature was $\pm 0.1$ K.																																																																																							
<b>REFERENCES:</b> 1. Petrov, T.G.; Trejbus, E.B.; Kosatkin, A.P. "Vyrashchivanie Kristallov iz Rastvorov", Nedra, Leningrad, 1967.																																																																																							