

COMPONENTS: (1) Dipotassium hydrogenphosphate; K_2HPO_4 ; [7758-11-4] (2) Water; H_2O ; [7732-18-5]	ORIGINAL MEASUREMENTS: Ravich, M.I. Izv. AN SSSR, Ser. Khim. 1938, 141-6.																																																																																																																																																																																																
VARIABLES: Temperature and composition.	PREPARED BY: J. Eysseltová																																																																																																																																																																																																
EXPERIMENTAL VALUES: Composition and crystallization temperatures of saturated solutions in the $K_2HPO_4-H_2O$ system. <table border="1" data-bbox="254 562 1268 977"> <thead> <tr> <th>$t/^\circ C.$</th> <th colspan="2">K_2HPO_4</th> <th colspan="2">H_2O</th> <th>solid phase</th> <th>$t/^\circ C.$</th> <th colspan="2">K_2HPO_4</th> <th colspan="2">H_2O</th> <th>solid phase^b</th> </tr> <tr> <th></th> <th>mass%</th> <th>mol%</th> <th>mol/kg^a</th> <th>mol/kg^a</th> <th></th> <th></th> <th>mass%</th> <th>mol%</th> <th>mol/kg^a</th> <th>mol/kg^a</th> <th></th> </tr> </thead> <tbody> <tr><td>-4.2</td><td>16.78</td><td>2.04</td><td>1.16</td><td>1.16</td><td>ice</td><td>8.2</td><td>69.09</td><td>18.75</td><td>12.83</td><td>12.83</td><td>A^c</td></tr> <tr><td>-6.4</td><td>23.60</td><td>3.09</td><td>1.77</td><td>1.77</td><td>"</td><td>0</td><td>57.05</td><td>12.01</td><td>7.62</td><td>7.62</td><td>B^c</td></tr> <tr><td>-9</td><td>29.61</td><td>4.17</td><td>2.41</td><td>2.41</td><td>"</td><td>10.0</td><td>59.08</td><td>12.96</td><td>8.28</td><td>8.28</td><td>"</td></tr> <tr><td>-11.7</td><td>34.10</td><td>5.07</td><td>2.97</td><td>2.97</td><td>"</td><td>15.0</td><td>60.16</td><td>13.49</td><td>8.66</td><td>8.66</td><td>B</td></tr> <tr><td>-13.5</td><td>36.78</td><td>5.67</td><td>3.33</td><td>3.33</td><td>ice + A</td><td>20.0</td><td>61.52</td><td>14.16</td><td>9.17</td><td>9.17</td><td>"</td></tr> <tr><td>0</td><td>46.11</td><td>8.12</td><td>4.91</td><td>4.91</td><td>A</td><td>25.0</td><td>62.74</td><td>14.83</td><td>9.66</td><td>9.66</td><td>"</td></tr> <tr><td>4.95</td><td>50.12</td><td>9.40</td><td>5.76</td><td>5.76</td><td>"</td><td>30.0</td><td>64.13</td><td>15.60</td><td>10.26</td><td>10.26</td><td>"</td></tr> <tr><td>9.7</td><td>54.43</td><td>10.99</td><td>6.85</td><td>6.85</td><td>"</td><td>35</td><td>65.68</td><td>16.51</td><td>10.98</td><td>10.98</td><td>"</td></tr> <tr><td>13.15</td><td>57.89</td><td>12.44</td><td>7.89</td><td>7.89</td><td>"</td><td>39.5</td><td>67.54</td><td>17.68</td><td>11.94</td><td>11.94</td><td>"</td></tr> <tr><td>14.3</td><td>-----</td><td>-----</td><td>-----</td><td>-----</td><td>A + B</td><td>44</td><td>69.83</td><td>19.29</td><td>13.28</td><td>13.28</td><td>"</td></tr> <tr><td>14.6</td><td>60.82</td><td>13.82</td><td>8.91</td><td>8.91</td><td>A^c</td><td>46</td><td>71.26</td><td>20.42</td><td>14.23</td><td>14.23</td><td>"</td></tr> <tr><td>14.85</td><td>71.73</td><td>14.29</td><td>9.26</td><td>9.26</td><td>"</td><td>51</td><td>72.64</td><td>21.55</td><td>15.24</td><td>15.24</td><td>C</td></tr> <tr><td>14.7</td><td>62.96</td><td>14.94</td><td>9.75</td><td>9.75</td><td>"</td><td>56</td><td>72.50</td><td>21.38</td><td>15.13</td><td>15.13</td><td>"</td></tr> <tr><td>12.8</td><td>65.95</td><td>16.68</td><td>11.11</td><td>11.11</td><td>"</td><td>63</td><td>72.79</td><td>21.66</td><td>15.35</td><td>15.35</td><td>"</td></tr> </tbody> </table> <p>^aThe mol/kg H_2O values were calculated by the compiler.</p> <p>^bThe solid phases are: A = $K_2HPO_4 \cdot 6H_2O$; B = $K_2HPO_4 \cdot 3H_2O$; C = KH_2PO_4.</p> <p>^cThis is a metastable solution.</p>		$t/^\circ C.$	K_2HPO_4		H_2O		solid phase	$t/^\circ C.$	K_2HPO_4		H_2O		solid phase ^b		mass%	mol%	mol/kg ^a	mol/kg ^a			mass%	mol%	mol/kg ^a	mol/kg ^a		-4.2	16.78	2.04	1.16	1.16	ice	8.2	69.09	18.75	12.83	12.83	A ^c	-6.4	23.60	3.09	1.77	1.77	"	0	57.05	12.01	7.62	7.62	B ^c	-9	29.61	4.17	2.41	2.41	"	10.0	59.08	12.96	8.28	8.28	"	-11.7	34.10	5.07	2.97	2.97	"	15.0	60.16	13.49	8.66	8.66	B	-13.5	36.78	5.67	3.33	3.33	ice + A	20.0	61.52	14.16	9.17	9.17	"	0	46.11	8.12	4.91	4.91	A	25.0	62.74	14.83	9.66	9.66	"	4.95	50.12	9.40	5.76	5.76	"	30.0	64.13	15.60	10.26	10.26	"	9.7	54.43	10.99	6.85	6.85	"	35	65.68	16.51	10.98	10.98	"	13.15	57.89	12.44	7.89	7.89	"	39.5	67.54	17.68	11.94	11.94	"	14.3	-----	-----	-----	-----	A + B	44	69.83	19.29	13.28	13.28	"	14.6	60.82	13.82	8.91	8.91	A ^c	46	71.26	20.42	14.23	14.23	"	14.85	71.73	14.29	9.26	9.26	"	51	72.64	21.55	15.24	15.24	C	14.7	62.96	14.94	9.75	9.75	"	56	72.50	21.38	15.13	15.13	"	12.8	65.95	16.68	11.11	11.11	"	63	72.79	21.66	15.35	15.35	"
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METHOD/APPARATUS/PROCEDURE: For the systems in which the trihydrate or the anhydrous salt was the solid phase, the solubility was determined by evaporating the solution to dryness. Where the hexahydrate was the solid phase, a visual polythermic method was used. Analyses were carried out gravimetrically: K_2O was determined as $KClO_4$; P_2O_5 was determined as $Mg_2P_2O_7$; and water was determined by weight loss during calcination.	SOURCE AND PURITY OF MATERIALS: The K_2HPO_4 was prepared from twice recrystallized KH_2PO_4 and KOH. Analysis: <table border="1" data-bbox="806 1420 1306 1569"> <thead> <tr> <th></th> <th>found</th> <th>calcd for $K_2HPO_4 \cdot 6H_2O$</th> </tr> </thead> <tbody> <tr><td>K_2O</td><td>33.37</td><td>33.38</td></tr> <tr><td>P_2O_5</td><td>25.20</td><td>25.26</td></tr> <tr><td>H_2O</td><td>41.52</td><td>41.46</td></tr> </tbody> </table> ESTIMATED ERROR: No information is given. REFERENCES:		found	calcd for $K_2HPO_4 \cdot 6H_2O$	K_2O	33.37	33.38	P_2O_5	25.20	25.26	H_2O	41.52	41.46																																																																																																																																																																																				
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