COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 2-amino-, (orthanilamide); $C_6H_8N_2O_2S$; [3306-62-5] (2) Water; H_2O; [7732-18-5]	Kienle, R. H.; Sayward, J. M., *J. Am. Chem. Soc.* <u>1942</u>, *64*, 2464-8
VARIABLES:	**PREPARED BY:**
Temperature	R. Piekos

EXPERIMENTAL VALUES:

t/°C	g/100 g soln		mol kg^{-1} (compiler)	
23.0	0.65		0.038	
24.0	0.67		0.039	
26.0	0.75		0.044	
28.0	0.82; 0.82		0.048	
30.5	0.91		0.053	
33.0	1.01		0.0586	
34.0	1.05		0.0610	
35.5	1.11		0.0645	
37.0	1.20; 1.20	± 0.024	0.0697	±0.0014
37.0	1.20[a]		0.0697	
37.0	1.18[b]		0.0685	
37.05	1.19		0.0691	
42.0	1.46		0.0848	
46.0	1.70		0.0987	
50.0	2.00[b]		0.116	

[a] Equilibrium approached from below.

[b] Duration less than 12 hours.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of solid was rotated with water usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with 0.04 mol dm^{-3} $NaNO_2$ to first blue on starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Orthanilamide, m.p. 155.2°C, was prepd by the authors. Titrn. with nitrite indicated that the compd was 100.0 ±0.3% pure. Elemental analysis and mixed m.p. confirmed this value. Purity of the water was not specified.

ESTIMATED ERROR: Temp: ±0.02°C (authors). Soly: ±0.01 g/100 g soln (authors) or ±0.012 x 10^{-3} in mole fraction. The 2 σ value for 37°C indicated in results.

REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Benzenesulfonamide, 2-amino- (orthanilamide); $C_6H_8N_2O_2S$; [3306-62-5] (2) Phosphoric acid, disodium salt; Na_2HPO_4; [7558-94-4] (3) Phosphoric acid, monopotassium salt; KH_2PO_4; [7778-77-0] (4) Water; H_2O; [7732-18-5]	Kienle, R. H.; Sayward, J. M. *J. Am. Chem. Soc.* 1942, *64*, 2464-8.
VARIABLES:	PREPARED BY:
One temperature: 37.0°C; one pH: 6.9	R. Piekos

EXPERIMENTAL VALUES:

Solubility of orthanilamide in a buffer solution prepared by mixing together 55.2 cm^3 of 1/15 M Na_2HPO_4 with 44.8 cm^3 of 1/15 M KH_2PO_4 (pH 6.9 , ionic strength calculated from dissociation constants 0.03[a]) at 37.0°C is 1.19 g/100 cm^3 solution (6.91 x 10^{-2} mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of orthanilamide was rotatd with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Orthanilamide, mp 155.2°C, was prepd by the authors. Titrn with nitrite indicated that the compd was 100.0±0.3% pure. Elemental analysis and mixed mp confirmed this value.
Source and purity of the remaining materials was not specified.

ESTIMATED ERROR: Soly: ±0.01 g/100 g soln or ±0.012 x 10^{-3} in mole fraction (authors). Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 2-amino- (orthanilamide); $C_6H_8N_2O_2S$; [3306-62-5]

(2) Hydrochloric acid; HCl; [7647-01-0]

(3) Potassium chloride; KCl; [7447-40-7]

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

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

One temperature: 37.0°C; one pH: 1.2

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of orthanilamide in a solution prepared by mixing together 25 cm^3 of 0.2 M KCl with 42.5 cm^3 of 0.2 M HCl and diluting up to 100 cm^3 with water (pH 1.2, ionic strength calculated from dissociation constants 0.12[a]) at 37.0°C is 1.92 g/100 cm^3 solution (0.111 mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of orthanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Orthanilamide, mp 155.2°C, was prepd by the authors. Titrn with nitrite indicated that the compd was 100.0±0.3% pure. Elemental analysis and mixed mp confirmed this value. Purity of the water was not specified.

The source and purity of the remaining materials was not specified.

ESTIMATED ERROR: Soly: ±0.01 g/100 g soln or ±0.012 x 10^{-3} in mole fraction (authors). Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 2-amino- (orthanilamide); $C_6H_8N_2O_2S$; [3306-62-5]

(2) Boric acid; H_3BO_3; [10043-35-3]

(3) Potassium chloride; KCl; [7447-40-7]

(4) Sodium hydroxide; NaOH; [1310-73-2]

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

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8

VARIABLES:

pH; ionic strength

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

pH of borate buffer	Ionic strength[a]	Solubility at 37.0°C	
		g/100 cm^3 solution	10^2 mol dm^{-3} [b]
9.4[c]	0.08	1.34	7.78
9.7[d]	0.09	1.39	8.07

[a] Calculated from dissociation constants (reactions not specified).

[b] Calculated by compiler.

[c] Obtained by mixing together 50 cm^3 of a 0.1 M solution in both H_3BO_3 and KCl with 32.1 cm^3 of 0.1 M NaOH and diluting with water up to 100 cm^3.

[d] Obtained by mixing together 50 cm^3 of a 0.1 M solution in both H_3BO_3 and KCl with 38.75 cm^3 of 0.1 M NaOH and diluting with water up to 100 cm^3.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of orthanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodine paper.

SOURCE AND PURITY OF MATERIALS:

Orthanilamide, mp 155.2°C, was prepd by the authors. Titrn with nitrite indicated that the compd was 100.0 ± 0.3% pure. Elemental analysis and mixed mp confirmed this value. Source and purity of the remaining materials was not specified.

ESTIMATED ERROR: Soly: ± 0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors). Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 2-amino- (orthanilamide); $C_6H_8N_2O_2S$; [3306-62-5]

(2) Phosphoric acid, disodium salt; Na_2HPO_4; [7558-94-4]

(3) 1, 2, 3-Propanetricarboxylic acid, 2-hydroxy- (citric acid); $C_6H_8O_7$;[77-92-9]

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

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

One temperature: 37.0°C; one pH: 4.2

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of orthanilamide in a solution prepared by mixing together 41.4 cm^3 of 0.2 M Na_2HPO_4 with 58.6 cm^3 of 0.1 M citric acid (pH 4.2 ionic strength calculated from dissociation constants 0.84[a]) at 37.0°C is 1.08 g/100 cm^3 solution (6.27×10^{-2} mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of orthanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Orthanilamide, mp 155.2°C, was prepd by the authors. Titrn with nitrite indicated that the compd was 100.0±0.3% pure. Elemental analysis and mixed mp confirmed this value.

The source and purity of the remaining materials was not specified.

ESTIMATED ERROR: Soly: ±0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors). Temp: ±0.02°C (authors).

REFERENCES:

COMPONENTS:

(1) Benzenesulfonamide, 2-amino- (orthanilamide); $C_6H_8N_2O_2S$; [3306-62-5]

(2) 1,2-Benzenedicarboxylic acid, monopotassium salt; $C_8H_5KO_4$; [877-24-7]

(3) Hydrochloric acid; HCl; [7647-01-0]

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

ORIGINAL MEASUREMENTS:

Kienle, R. H.; Sayward, J. M.

J. Am. Chem. Soc. 1942, *64*, 2464-8.

VARIABLES:

One temperature: 37.0°C; one pH: 2.2

PREPARED BY:

R. Piekos

EXPERIMENTAL VALUES:

Solubility of orthanilamide in a buffer soln prepared by mixing together 50 cm^3 of 0.1 M monopotassium 1,2-benzenedicarboxylate with 49.5 cm^3 of 0.1 M HCl and diluting up to 100 cm^3 with water (pH 2.2, ionic strength calculated from dissociation constants 0.06[a]) at 37.0°C is 1.31 g/100 cm^3 solution (7.61×10^{-2} mol dm^{-3}, compiler).

[a] Not specified for which reactions were the dissociation constants calculated - compiler.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

An excess of orthanilamide was rotated with the buffer soln usually overnight. Equilibrium was approached from above. Sampling was accomplished by forcing the soln through a filter into a pycnometer. From the pycnometer the contents were flushed into a volumetric flask. Duplicate aliquots were acidified, iced below 15°C and titrated with a 0.04 mol dm^{-3} $NaNO_2$ soln to first blue on a starch - iodide paper.

SOURCE AND PURITY OF MATERIALS:

Orthanliamide, mp 155.2°C, was prepd by the authors. Titrn with nitrite indicated that the compd was 100.0±0.3% pure. Elemental analysis and mixed mp confirmed this value. The source and purity of the remaining materials was not specified.

ESTIMATED ERROR:

Soly: ± 0.01 g/100 g soln or $\pm 0.012 \times 10^{-3}$ in mole fraction (authors). Temp: ±0.02°C (authors).

REFERENCES: