COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Lithium phosphate; Li_3PO_4; [10377-52-3] (2) Ammonia; NH_3; [7664-41-7] (3) Water; H_2O; [7732-18-5]	Mayer, W. *Ann. Chem. u. Pharm. 1856, 98, 192-212; Ann. Chim. 1856, 288- .
VARIABLES:	PREPARED BY:
Room temperature: 15 - 18°C	J. Eysseltová and M. Salomon

EXPERIMENTAL VALUES: Composition of saturated solutions:

solvent composition	sln mass/g	Li_3PO_4 mass/g	g Li_3PO_4/100 g H_2O [b]	m(Li_3PO_4)/mol kg^{-1} [b]
pure H_2O	45	0.0176	0.0391	0.00338
	45	0.0178	0.0396	0.00342
	75	0.0296	0.0395	0.00341
2 vol H_2O + 1 vol NH_4OH [a]	74.12	0.0174	0.023	0.0014
	74.12	0.0190	0.026	0.0015
	44.47	0.0124	0.028	0.0016
	44.47	0.0117	0.026	0.0015

[a] For this NH_3 sln, the specific gravity = 0.965 (author), but temp not specified. Assuming temp = 20 C, the NH_3 concn in the final sln is about 1.6 mol kg^{-1} (compilers).

[b] Compilers' calculations. Average values and their standard deviations are given below.

In pure water. solubility = 0.0394 g/100 g H_2O (σ = 0.002)

= 0.00340 mol kg^{-1} (σ = 0.00002)

In ~ 1.6 mol kg^{-1} NH_3 sln.

solubility = 0.025 g/100 g H_2O (σ = 0.002)

= 0.0015 mol kg^{-1} (σ = 0.0001)

Note: in converting to mol kg^{-1} in 1.6 mol kg^{-1} NH_3 slns, the compilers calculated the mass of water from g(H_2O) = g(sln) - g(NH_3) - g(Li_3PO_4).

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Each determination consisted of equilibrating solid + liquid for 10-14 days at 15-18°C with frequent shaking. Analysis not described, but probably was either evaporation of a satd sln followed by weighing, or by pptn of $Ba_3(PO_4)_2$ by addn of $Ba(OH)_2$ followed by weighing as described elsewhere in the paper for the stoichiometric analysis of the ppt. Although not stated, it is possible that the approach to equilibrium was from supersaturation (see discussion in the critical evaluation).	Li_3PO_4 pptd from a mixture of Na_2HPO_4, Li_2SO_4, and NH_4OH. The ppt was washed with boiled water until the wash water was free of SO_4^{2-} (tested with $BaCl_2$ sln).
	ESTIMATED ERROR:
	Nothing specified. The reproducibility appears satisfactory, but the overall accuracy of the solubility is probably no better than 15%.
	REFERENCES: