Marks 7

- Uric acid, $C_5H_5N_4O_3$, is a weak diprotic acid with a low solubility of 70 mg L^{-1}. The extremely painful inflammation known as gout occurs when crystals of uric acid are deposited in the joints. Given that the pH of a saturated solution of uric acid is 4.58, calculate the pK_{a1} of uric acid at 25 °C?

Answer:

The monosodium salt of uric acid is slightly more soluble, 8×10^{-4} g mL^{-1}. Calculate the solubility product constant, K_{sp}, of sodium urate at 25 °C. Assume no hydrolysis of the urate ion occurs.

Answer:

Suggest a possible reason why the pH of blood plasma remains near 7.4 even when saturated with uric acid.