Ti Application Note No. T- 18

Title:	**Determination of the total penicillin content**

***Summary*:**	Determination of the total penicillin content by potentiometric titration with Hg(II) using the combined Au electrode.

Sample:	Penicillin

Sample Preparation:	none, see under «Analysis»

Instruments and Accessories:	702, 716 or 736 Titrino or 726 Titroprocessor, 6.0413.100 combined Au electrode

Analysis:	Weigh exactly approx. 50 mg sample into a beaker, add 10 mL dist. water and 5 mL c(NaOH) = 1 mol/L and stir the solution for exactly 10 min. Afterwards add 5 mL c(HNO_3) = 2 mol/L, 25 mL acetate buffer pH = 4.6 and 60 mL dist. water, then titrate with c[$Hg(NO_3)_2$] = 0.02 mol/L.

Calculation:	% penicillin total = EP1 * C01 * C02 / C00 – C03 EP1 = titrant consumption in mL C00 = approx. 0.05 (sample weight in g) C01 = 35.64 [M(sodium benzylpenicillin) in g/mol multiplied by 0.1] C02 = 0.02 (concentration of the titrant in mol/L) C03 = C31 (common variable; determination of the decomposition products in the sample, same titration but different sample preparation)

Remarks:	When out of use the electrode is stored in c(KCl) = 3 mol/L. After about 30 titrations the electrode has to be «cleaned» as follows: First clean it mechanically with wetted polishing powder (e.g. Alox). After rinsing with dist. water immerse the electrode for 5 min in buffer solution pH = 4 containing 0.5 g / 50 mL quinhydrone. (Quinhydrone is an 1 : 1 mixture of hydroquinone and quinone.) **Result:** AVG(15) = 98.995 ± 0.54 % penicillin total