Ti Application Note No. T- 9

Title:	**Sulphate in cement**

***Summary*:**	Determination of sulphate in cement by indirect potentiometric titration with EDTA using platinum and tungsten electrodes.

Sample:	Cement

Sample Preparation:	Mix ca. 1 g sample with 1.5 g NH_4Cl. Carefully add 8 mL conc. HCl and 0.5 mL conc. HNO_3 and boil for 10 ... 20 min. Then add 40 mL hot, dist. water, filter the solution through a paper filter into a 100 mL volumetric flask and rinse the filter with hot, dist. water. Allow the solution to cool, fill the flask to the mark and mix the contents. Pass ca. 30 ... 40 mL of this solution through a highly acidic cation exchanger resin.

Instruments and Accessories:	702, 716 or 736 Titrino or 726 Titroprocessor, 6.0331.000 Pt electrode and 6.1248.050 W electrode with 6.1241.030 shaft

Analysis:	Pipette 10.0 mL of the prepared sample solution and 40 mL dist. water into the titration vessel. Add 5.00 mL c($BaCl_2$) = 0.05 mol/L and allow to react for 3 min with stirring. Add 10 mL buffer pH = 10 and, having waited for another 3 min, titrate with c(EDTA) = 0.05 mol/L using the MET U mode (wait time 20 s). The blank is determined in the same way (use dist. water as sample).

Calculation:	g/kg SO_4^{2-} = (V_b - V_s) * C01 / C00 V_b = mL EDTA for the blank V_s = mL EDTA for the sample C00 = ca. 0.1 (g of original sample contained in the sample volume used for the titration) C01 = 4.803 (SO_4^{2-} equivalent in mg/mL; 1 mL c(EGTA) = 0.05 mol/L corresponds to 4.803 mg SO_4^{2-})