Ti Application Note No. T- 8

Title:	**Sulphate in brine**

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

Sample:	NaCl brine

Sample Preparation:	If the sample contains Ca^{2+} ions both the Ba and Ca are titrated. It is thus necessary to determine the Ca content separately and take it into account for the calculation. Another possibility is to remove the Ca^{2+} ions by passing the sample 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 the sample into a beaker and make up the solution to 50 mL with dist. water. Add 5.00 mL c($BaCl_2$) = 0.05 mol/L and allow to react for 3 min with stirring. Add 5 mL buffer pH = 10 and, having waited for another 3 min, titrate with c(EGTA) = 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:	mg/L SO_4^{2-} = (V_b - V_s) * C01 * C02 / C00 V_b = mL EGTA for the blank V_s = mL EGTA for the sample C00 = sample size in mL 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-}) C02 = 1000 (conversion factor)

Remarks:	Alkaline samples have to be acidified with HCl to pH = 4.0 before $BaCl_2$ is added.