Ti Application Note No. T- 6

Title:	**Trace chloride in cement and clinker**

***Summary*:**	Determination of trace chloride in cement and clinker by potentiometric titration with silver nitrate using the Ag Titrode.

Sample:	Cement, clinker

Sample Preparation:	Weigh exactly 2.500 g sample into a beaker, then add 30 mL dist. water and a magnetic stirrer bar. While stirring, carefully add 6 mL conc. HNO_3. Place the beaker into an ultrasonic bath for 1 ... 2 min. Afterwards filter the solution through a (chloride-free) paper filter into a 100 mL volumetric flask, rinse with dist. water, fill the flask to the mark and mix the contents.

Instruments and Accessories:	702, 716 or 736 Titrino or 726 Titroprocessor, 6.0430.100 Ag Titrode with Ag_2S coating

Analysis:	Pipette 50.0 mL sample solution (corresponds to 1.25 g of the original sample) into a titration beaker. Add 20 mL glacial acetic acid and ca. 0.5 g Na acetate and titrate with c($AgNO_3$) = 0.01 mol/L using the MET U mode (wait time 10 s).

Calculation:	% Cl^- = EP1 * C01 * C02 * C03 / C00 EP1 = titrant consumption in mL C00 = 1.25 (g of original sample contained in the sample volume used for the titration) C01 = 0.355 (Cl^- equivalent in mg/mL; 1 mL c($AgNO_3$) = 0.01 mol/L corresponds to 0.355 mg Cl^-) C02 = titre of the titrant C03 = 0.1 (conversion factor for %)

Remarks:	Work under clean conditions with chloride-free glassware and reagents. For the titre determination of the titrant 100 uL KCl standard solution (Metrohm No. 6.2301.060) can be used. To allow the electrode to adjust to the titration conditions two or three standards should be titrated first. **Result for cement:**

AVG(3) = 0.00345 +/- 0.0004 % Cl⁻