Ti Application Note No. T- 28

Title:	**Hydrogen sulphide and mercaptans in petroleum products**

***Summary*:**	Simultaneous determination of hydrogen sulphide and mercaptans in petroleum products by potentiometric titration with silver nitrate using the Ag Titrode.

Sample:	Petroleum products, e.g. diesel fuel, petrol, gasoline etc.

Sample Preparation:	none

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

Analysis:	Pour 100 mL acetone, 20 mL isopropanol and 5 mL electrolyte (prepared by dissolving 20 g NH_4NO_3 in 100 mL NH_3 25%) into the titration vessel and deaerate the solution by passing nitrogen through it. Add 3.5 ... 11 g sample (exactly weighed) and titrate under nitrogen with $c(AgNO_3)$ = 0.0005 mol/L.

Calculation:	If the sample contains both H_2S and mercaptans, two equivalence points are obtained, the first of which corresponds to the H_2S and the second to the mercaptans. ppm H_2S sulphur = EP1 * C01 * C02 / C00 ppm mercaptan sulphur = (EP2 - EP1) * C03 * C02 / C00 EP1 = titrant consumption in mL to reach the first EP EP2 = titrant consumption in mL to reach the second EP C00 = sample weight in g C01 = 0.008 (H_2S sulphur equivalent in mg/mL; 1 mL $c(AgNO_3)$ = 0.0005 mol/L corresponds to 0.008 mg H_2S sulphur) C02 = 1000 (conversion factor for ppm) C03 = 0.016 (mercaptan sulphur equivalent in mg/mL; 1 mL $c(AgNO_3)$ = 0.0005 mol/L corresponds to 0.008 mg mercaptan sulphur)

Remarks:	Before adding the sample the solvent mixture has to be absolutely free of oxygen! **Results:** AVG(3) = 2.6 +/- 0.1 ppm H_2S sulphur AVG(3) = 32.28 +/- 0.1 ppm mercaptan sulphur