

Ti Application Note No. T- 19

Title:	Cyanide and silver in silver plating bath						
Summary:	Simultaneous determination of cyanide and silver in a silver plating bath by potentiometric titration with silver nitrate using the Ag Titrode.						
Sample:	Cyanidic silver plating bath						
Sample Preparation:	none						
Instruments and Accessories:	702, 716 or 736 Titrino or 726 Titroprocessor, 6.0430.100 Ag Titrode with Ag ₂ S coating						
Analysis:	Pour ca. 50 mL dist. water into a beaker. Add 2 mL c(NaOH) = 2 mol/L and 2.00 mL sample, then titrate with c(AgNO₃) = 0.1 mol/L. The first equivalence point of the titration curve corresponds to the free cyanide, the second EP corresponds to Ag(CN)₂⁻.						
Calculation:	1 mL c(AgNO₃) = 0.1 mol/L corresponds to <table><tr><td>10.787 mg Ag⁺</td></tr><tr><td>2.6018 mg CN⁻</td></tr><tr><td>6.5116 mg KCN</td></tr><tr><td>4.9007 mg NaCN</td></tr></table> RS1: g/L cyanide = EP1 * C01 * C02 / C00 RS2: g/L Ag⁺ = (EP2 - EP1 - EP1) * C03 / C00 EP1 = titrant consumption in mL to reach the first EP EP2 = titrant consumption in mL to reach the second EP C00 = 2.00 (sample size in mL) C01 = 2 (stoichiometric factor: 2 CN⁻ react with 1 Ag⁺) C02 = 2.6018 or 6.5116 or 4.9007 (CN⁻ or KCN or NaCN equivalent in mg/mL, see above) C03 = 10.787 (Ag⁺ equivalent in mg/mL, see above)			10.787 mg Ag ⁺	2.6018 mg CN ⁻	6.5116 mg KCN	4.9007 mg NaCN
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Remarks:	Results: AVG(3) = 18.08 +/- 0.12 g/L free CN⁻ AVG(3) = 45.25 +/- 0.30 g/L free KCN AVG(3) = 61.15 +/- 0.13 g/L Ag⁺						