Ti Application Note No. T- 38

Title:	**Iron content of iron powder**

***Summary*:**	Determination of the iron content of iron powder by potentiometric titration with potassium dichromate using the Pt Titrode.

Sample:	Electrolytic and cast iron powders

Sample Preparation:	Weigh exactly ca. 100 mg sample into a beaker, add 40 mL conc. HCl and heat the solution to dissolve the sample completely. Allow to cool, then add 40 mL dist. water and drop by drop $SnCl_2$ solution until the sample solution becomes colourless.

Instruments and Accessories:	702, 716, 736 or 751 Titrino or 726 Titroprocessor, 6.0431.100 Pt Titrode

Analysis:	Add 3 mL each of conc. H_3PO_4 and conc. H_2SO_4 to the prepared sample solution and titrate with $c(^1/_6\ K_2Cr_2O_7)$ = 0.1 mol/L. The first equivalence point of the titration curve corresponds to the excess of Sn(II), and the difference between the second and the first EP to the total iron contained in the sample.

Calculation:	% Fe = (EP2 - EP1) * C01 * C02 / C00 EP1 = titrant consumption in mL to reach the first EP EP2 = titrant consumption in mL to reach the second EP C00 = ca. 0.1 (sample mass in g) C01 = 5.5847 (Fe equivalent in mg/mL; 1 mL $c(^1/_6\ K_2Cr_2O_7)$ = 0.1 mol/L corresponds to 5.5847 mg Fe) C02 = 0.1 (conversion factor for %)

Remarks:	Results: Electrolytic Fe powder: AVG(4) = 99.52 +/- 0.27 % Fe Cast Fe powder: AVG(4) = 91.03 +/- 0.81 % Fe