VA Application Note No. V- 44

Title:	**Boron in human plasma using Beryllon(III) as a ligand**

***Summary*:**	Voltammetric determination of boron in plasma using Beryllon (III) as a ligand *(L. Thunus (1996), Anal. Chim. Acta **318**: 303-308)*.

Sample:	Plasma samples
Sample Preparation:	Blood is obtained by vein puncture with a nylon catheter. Collection on EDTA (1 mg per mL of blood) in specially cleaned tubes. Centrifugation at 4°C for 15 minutes at 3000 x g. Plasma is stored at -20°C for further analysis. UV digestion of the plasma solution with NH_3 and H_2O_2 for 8 hours between 80 and 90°C. A quartz cell is used for the analysis.

Boron:	
Electrolyte:	Suprapure HOAc / NH_4OAc buffer, pH = 4.0 - 4.5. Beryllon(III) reagent between $4x10^{-5}$ mol/L and $1x10^{-4}$ mol/L.
AE:	Pt
RE:	Ag/AgCl/KCl sat.
Parameters:	DPCSV (-50 mV), HMDE U_{meas} = -250 mV (10s), U_{meas} = -250 mV (3s) without stirring, U_{start} = -200 mV, U_{end} = -900 mV Ep (Boron-Beryllon complex) = - 342 mV

Results:	**Boron-Beryllon complex** µg/L
	35

Determination of boron beryllon complex with calibration curve for boron

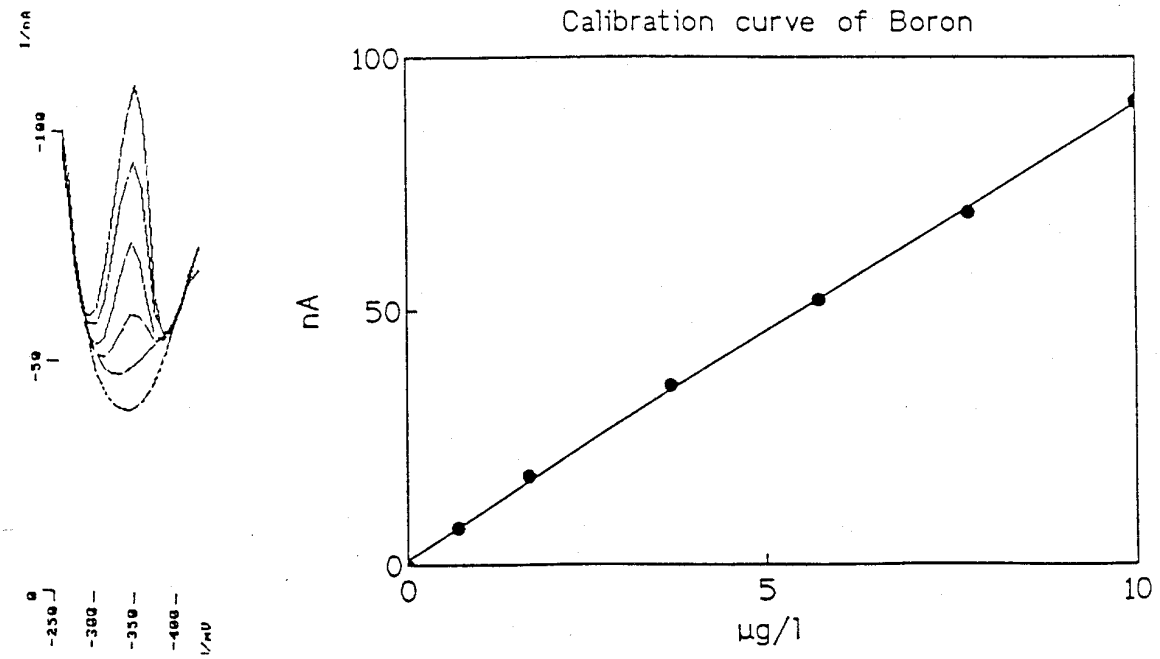

Fig. 2. Voltammograms of boron–Beryllon(III) complexes. Beryllon(III), 7×10^{-5} M; boron concentrations: 0.7, 1.7, 3.7, 5.7, 7.7 and 10 $\mu g\ l^{-1}$. Accumulation potential: −250 mV; accumulation time: 10 s with stirring, 3 s without stirring; sweep rate: 200 mV s^{-1}.