

# VA Application Note No. V - 122

**Title:** Determination of total iron in deionized water (Triethanolamine-bromate-method)

**Summary:** The concentration of Fe(total) is determined in deionized water. The method is suitable for iron concentrations down to the mid  $\mu\text{g/L}$  range. Electrochemical deposition is not applicable for this method. A subtraction of the reagent blank is recommended. Fe(II) and Fe(III) give signals with the same sensitivity.

**Sample:** Deionized water

**Sample preparation:** none

## Analysis of total Fe

**Electrolyte** c(triethanolamine) = 0.01 mol/L  
+ c( $\text{KBrO}_3$ ) = 0.1 mol/L  
+ c(NaOH) = 0.3 mol/L

**Measuring solution** 10 mL deionized water sample  
+ 2 mL electrolyte

**Working electrode (WE)** MME (Multi Mode Electrode) 6.1246.020

**Auxiliary electrode (AE)** Pt 6.0343.000

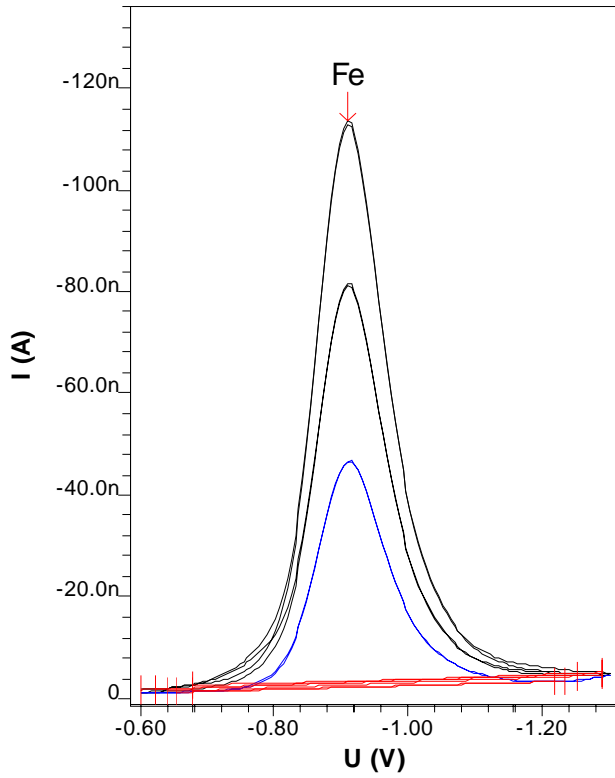
**Reference electrode (RE)** Ag/AgCl/KCl (3 mol/L): 6.0728.020 + 6.1245.010

### Parameters

Working electrode	HMDE
Stirrer speed	2000 rpm
Mode	DP
Purge time	300 s
Deposition potential	
Deposition time	0 s
Equilibration time	10 s
Pulse time	0.06 s
Pulse amplitude	50 mV
Start potential	-600 mV
End potential	-1300 mV
Voltage step	6 mV
Voltage step time	0.5 s
Sweep rate	12 mV/s
Peak potential Fe	-930 mV

<b>Results:</b>	Fe(total) (blank subtracted)
	121 µg/L

**Determination of total Fe**



**Fe**  
c = 135.151 µg/L  
+/- 1.960 µg/L (1.45%)

