

VA Application Note No. V - 124

Title: Determination of traces of Fe(III) in standard solution with solochrome violet RS

Summary: The concentration of Fe(III) is determined by adsorptive stripping voltammetry with solochrome violet RS as complexing agent. All reagents have to be added in the order as listed below. Fe(II) does not show any signal. All reagents typically contain iron impurities. Therefore a subtraction of the reagent blank is recommended.

Sample: Drinking water

Sample preparation: none

Analysis of Fe(III)

Acetate buffer pH 4.6 c(Na-acetate) = 1 mol/L
c(acetic acid) = 1 mol/L

SVRS solution c(SVRS) = 0.001 mol/L in water

SVRS: Solochrome Violet RS, Mordant Violet 5, Acid Alizarin Violet N, Acid Chrome Violet K, CAS: 2092-55-9

Recommended: Sigma-Aldrich Cat.No.: 211001

Measuring solution 10 mL (diluted) sample
+ 50 µL SVRS solution
+ 500 µL acetate buffer
→ adjust pH to 5.1 with NaOH or HNO₃

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	-0.2
Deposition time	20 s
Equilibration time	10 s
Pulse amplitude	50 mV
Start potential	-0.2 V
End potential	-0.7 V
Voltage step	4 mV

	Voltage step time	0.1 s
	Sweep rate	40 mV/s
	Peak potential Fe	-530 mV

Results:	Fe(III)
	2 µg/L

Determination of Fe(III)

