

VA Application Note No. V-117

Title: Iron in ethanol

Summary: Iron can be determined in ethanol by adsorptive stripping voltammetry (AdSV) at the HMDE. PIPES buffer is used as supporting electrolyte and catechol as complexing agent at a pH value of 7.0.

Sample: Ethanol, food grade

Sample preparation: none

Determination of iron

Electrolyte **PIPES buffer pH = 8.0:**
 c(PIPES) = 1 mol/L:
 6.0 g PIPES [piperazine-1,4-bis-(2-ethanesulfonic acid)] is mixed with 1 mL w(NaOH) = 30% (suprapur) and 2 mL water. Adjust the pH value to 8.0 with w(NH₃) = 25% (suprapur), then make up the solution to 20 mL with water.

Catechol solution:

c(catechol) = 1 mol/L

The solution is prepared from degassed water. It should be kept in the dark and is stable for one day.

Measuring solution
 10 mL ultrapure water
 + 100 µL w(HCl) = 15%
 + 1 mL ethanol sample
 + 50 µL catechol solution
 + 200 µL PIPES buffer,
 adjust pH to 7.0 ± 0.1 with w(NH₃) = 10%

Auxiliary electrode (AE) Pt

Reference electrode (RE) Ag/AgCl/KCl (3 mol/L)

Parameters

Working electrode	HMDE
Stirrer speed	2000 rpm
Mode	DP
Purge time	300 s
Deposition potential	-100 mV
Deposition time	60 s
Equilibration time	5 s
Pulse amplitude	50 mV
Start potential	-200 mV
End potential	-600 mV

	Voltage step	6 mV
	Voltage step time	0.3 s
	Sweep rate	20 mV/s
	Peak potential Fe	-390 mV

Results:	Fe
	21 µg/L

Determination of Fe

