Application Note
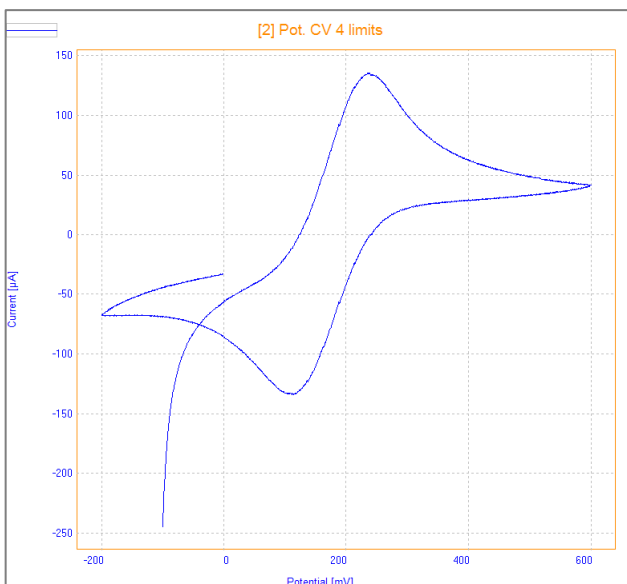
General Electrochemistry
AP-GE01

Cyclic Voltammetry (CV) 4 Limits

This Application Note describes how the CV 4 limits method works by giving an example with Ferri/Ferrate solution.

Introduction

In this application note a different type of performing CV method is being discussed. This is not only a CV method but also can define different potential vertex with different start and end potential which is called CV 4 limits.
CV 4 limits is an OrigaMaster 5 method accessible from the Chemistry items - Voltammetry group of the Sequence Ribbon.

Parameters

The Parameter of the CV 4 limits is shown in figure 1.
With the above default settings:
- Initial potential is -100 mV where the scan of potential starts.
                [Beginning of the CYCLE]
- Vertex 1 (V1) potential is +600 mV
- Vertex 2 (V2) potential is -200 mV
- Vertex 1 (V1) potential is +600 mV
                [End of the CYCLE]
- Final potential is 0 mV when the cycles are finished. The CV 4 limits ends here.

Thanks to flexibility of Origamaster5 software, all these parameters can be edited according to user's need. For example, the potentials can be set versus OCP, the test can be repeated.
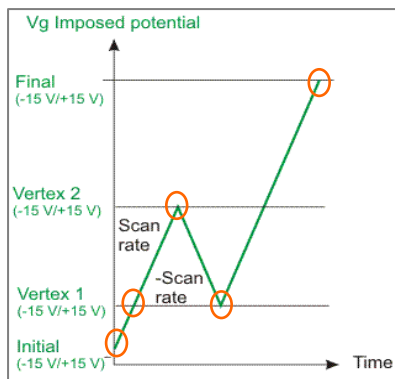

Figure 1: Parameters of method
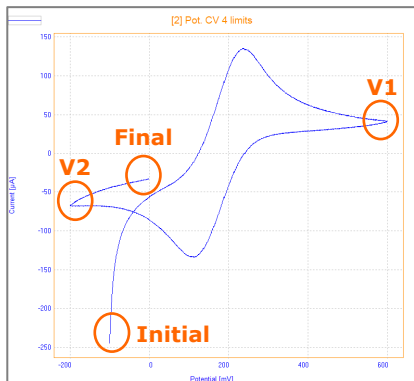

Figure 2: Curve Time vs Potential

Figure 3: Result

Results

Figure 3 shows the voltammogram of this test. This is not a complete cycle, but just to show the potential limitations.

Instrument and Electrodes

Figure 4: OrigaFlex OGF500

Figure 5: Electrochemical cell

Electrode setup

Reference Electrode (REF)	Calomel Type: OGR003
Counter Electrode (AUX)	Platinum wire Ø1mm Type: OGV005
Working Electrode (WRK)	Platinum Ø5mm Type: EMEDTPTD5
Electrolyte	Ferri/Ferrate solution 5×10^{-3} M in KCl
Instrument	OrigaFlex OGF500
Software	OrigaMaster

REF
Calomel

AUX
Platinum wire Ø1 mm

WRK
Platinum Ø5 mm