Electrolytic ESR - Time and Voltage dependence for p-Benzoquinone anion -

Product used：Electron Spin Resonance spectrometer (ESR)

■ Electrolytic time and voltage dependence

The sample was prepared by mixing the following reagents.

Sample： p-Benzoquinone ($C_6H_4O_2$) 1 mM

Supporting Electrolyte: Tetrapropylammonium Bromide 100 mM

Solvent：Dimethylformamide

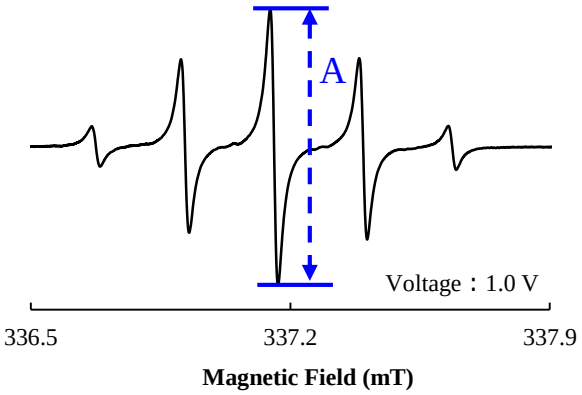

Figure 1. ESR spectrum of p-Benzoquinone anion radical.

The helix electrode electrolytic cell (ES-EL30) was used in this study. Please refer to the application note ER090001E for more information on this cell. The time dependence of the ESR signal was observed at a voltage of 0.75 to 1.00V. Then ESR signal intensity (A in Figure 1) was plotted against electrolysis time for each voltage, as shown in Figure 2.

It can be seen that as the voltage increases, p-Benzoquinone radical was generated in a shorter time and then disappear. The generation of p-Benzoquinone anion radical was confirmed at a voltage of 0.75V or more. The ESR signal reaches saturation level in about 30 minutes at a voltage of 1 V.

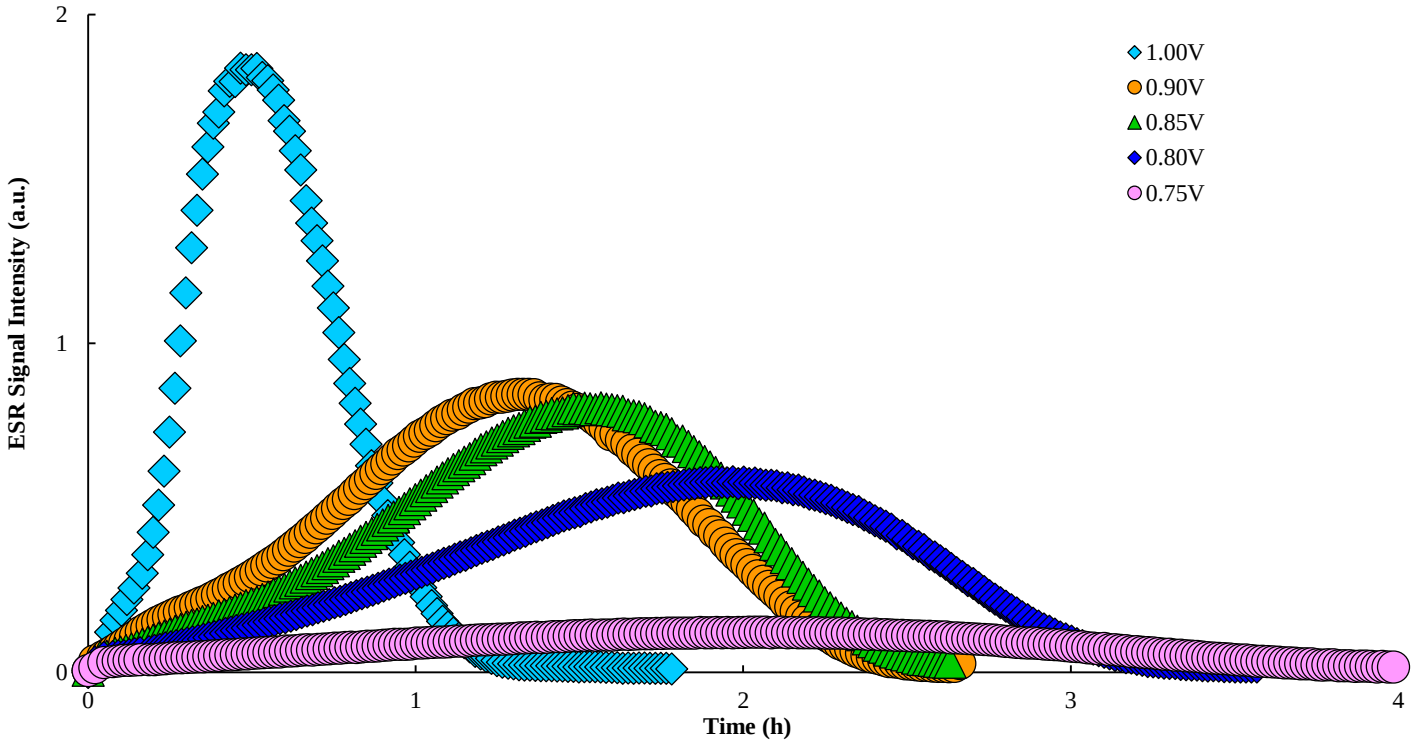

Figure 2. Voltage dependence of ESR spectra of p-Benzoquinone anion radical.

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