

Article

A New Setup for Simulating the Corrosion Behavior of Orthodontic Wires

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Supplementary Materials A:

CELL INFO

Surface Area measured from microscope.

Density calculated using:- WT % of alloy from EDX measurement.

An example with NiTi: Density of : Ti - 4.51 g/cm³

Ni - 8.91 g/cm³

WT: 47.33% Ti and 52.67% Ni

$0.47 \times 4.50 + 0.53 \times 8.91 = 6.8373 \text{ g/cm}^3$

Equivalent Mass Calculation: AT% from EDX used for equivalent mass calculation.

Molecular weight of Ti: 47.88 g/mol n = 4 electrons

Ni: 58.69 g/mol n = 2 electrons

$0.52 \times 47.88 / 4 + 0.48 \times 58.69 / 2 = 20.31 \text{ g}$

Figure S1. An example of the cell information that were used with Corroview to estimate polarization resistance (Rp), corrosion current density (icorr) (corrosion current density (I₀).

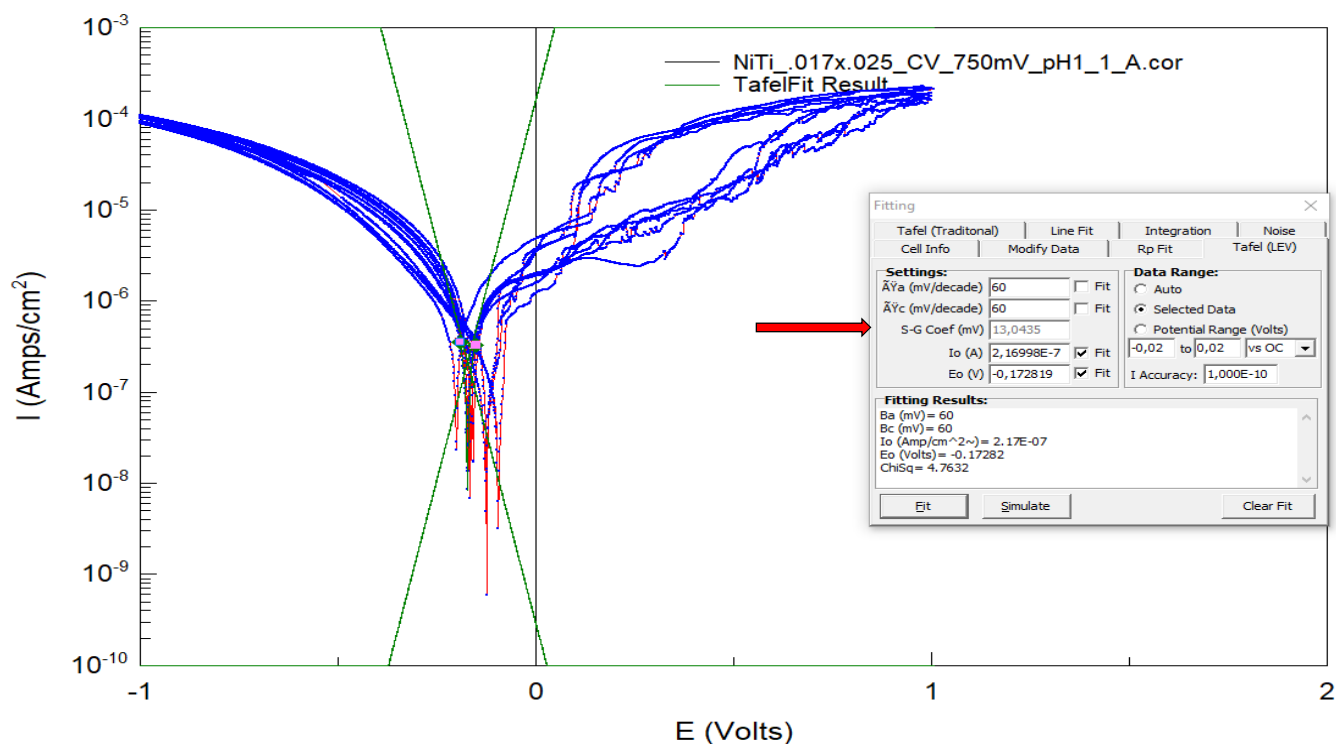


Figure S2. An example of the two-point is marked on the curve, and the "Tafel LEV" option is used to obtain the Stern coefficient.

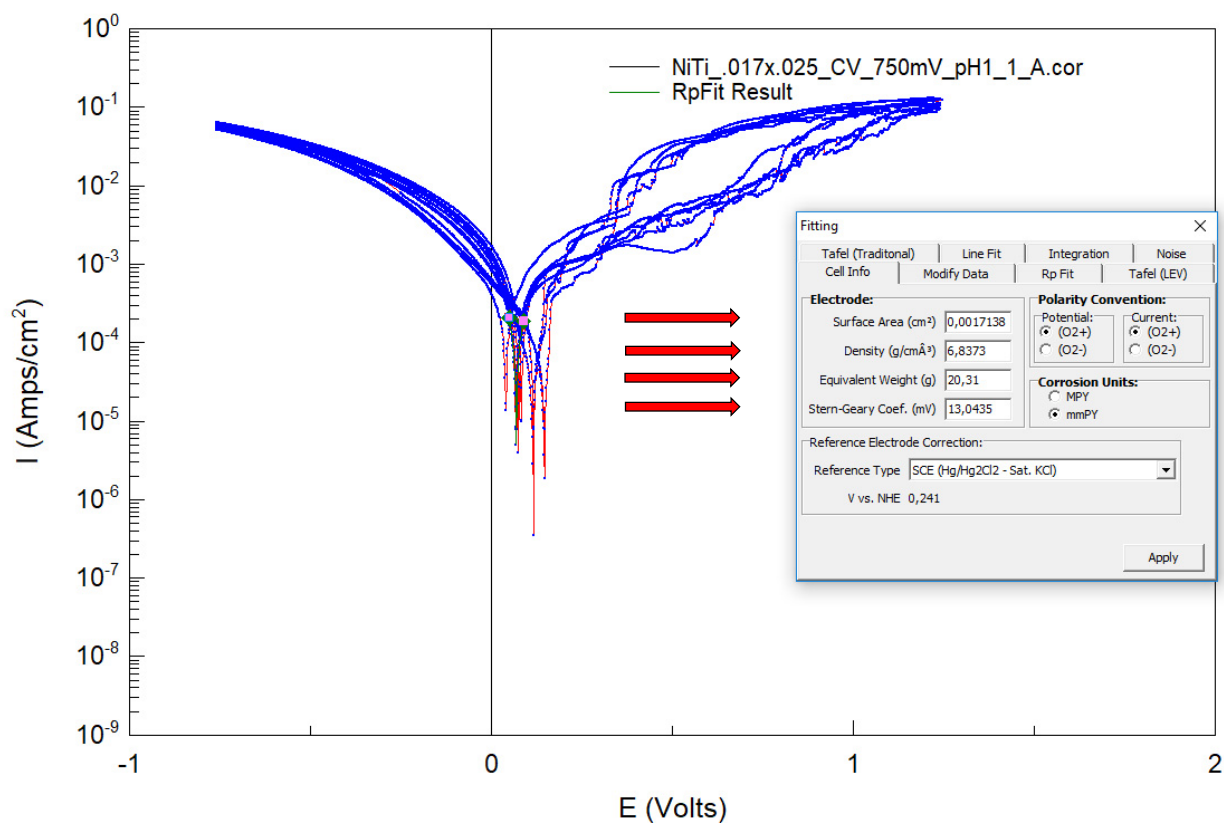


Figure S3. An example of cell information marked with red arrows.

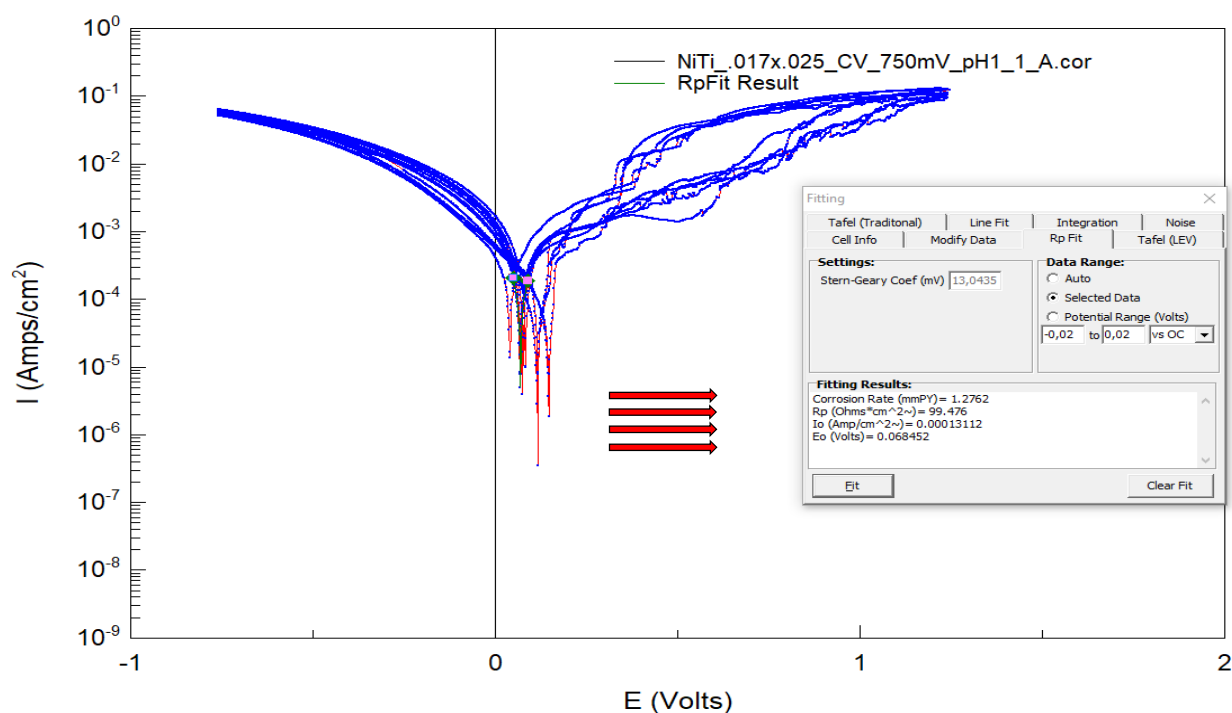


Figure S4. An example of the corrosion rate, polarization resistance (R_p), corrosion current density (I_o), and corrosion potential (E_o) calculation using “RP – Fit”; the results are marked with red arrows.

Supplementary Materials B:

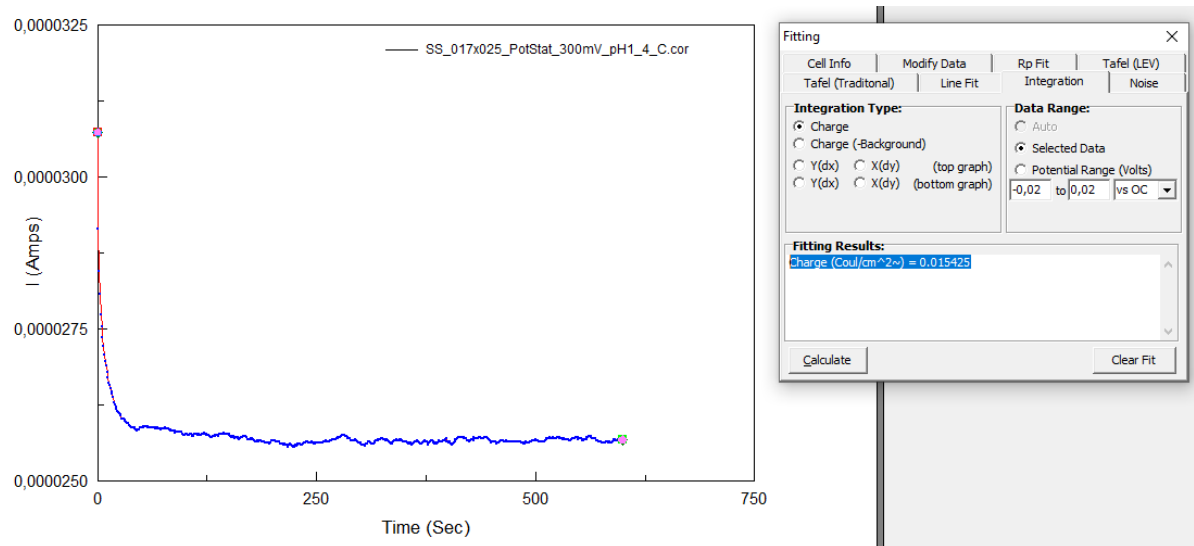


Figure S5. An example of the calculation of Q from I versus time curve using “RP – Fit”.

[illegible]