Electronic Supplementary Information

On the electrochemical dealloying of Al-based alloys in a NaCl aqueous solution

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The SEM images (in the supplementary material) of the precursor alloys and as-dealloyed samples were obtained using a scanning electron microscope (SEM LEO 1530VP) in back scattered mode or In-lens mode. The composition analysis of the as-dealloyed samples was carried out using an energy dispersive X-ray analyzer (EDX) which was attached to SEM.

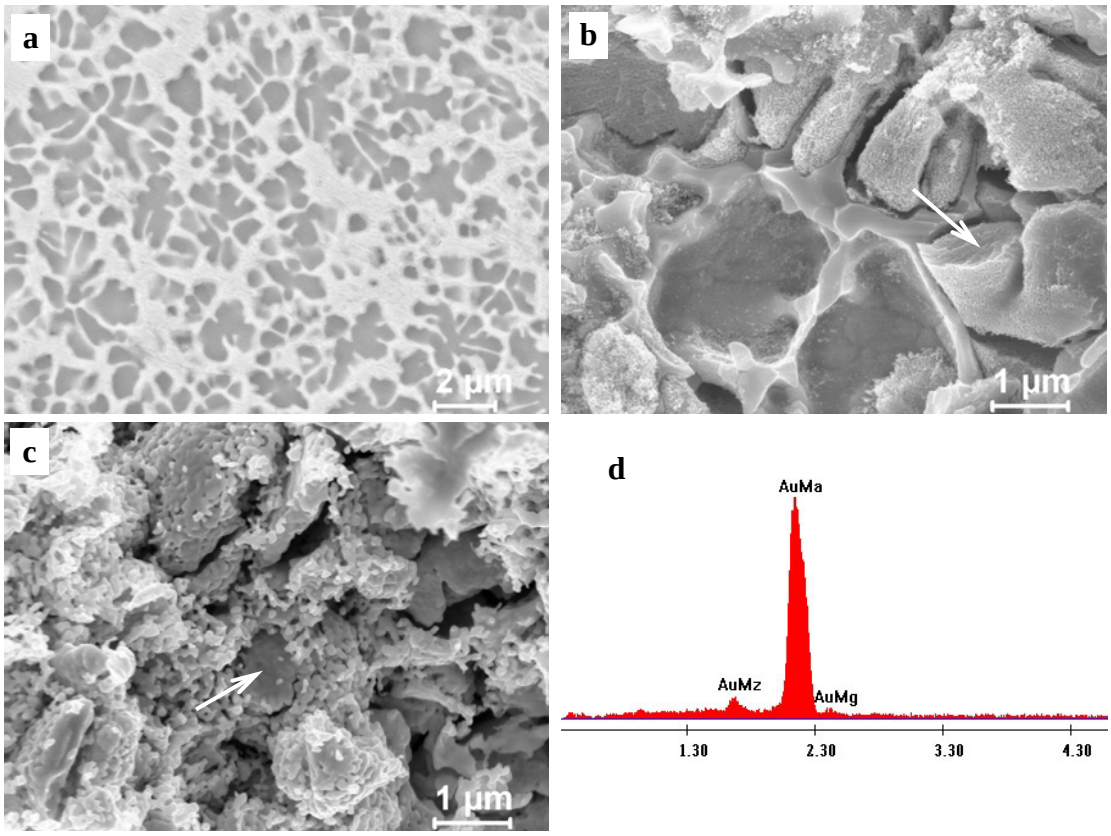

Fig. S1 (a) SEM (section view, in the back scattered mode) characterization of the melt-spun Al-40 Au alloy ribbons. (b) and (c) show the section view of the Al-40 Au alloy after the dealloying under constant potentials of 0.1 V (vs Ag/AgCl) and 0.7 V (vs SCE) respectively, and (d) is the EDX spectrum corresponding to (c).

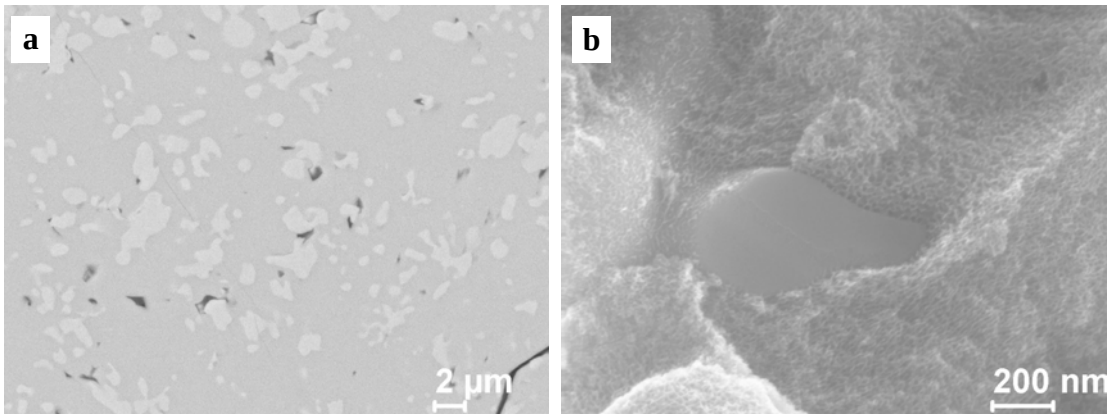

Fig. S2 (a) SEM (section view, in the back scattered mode) characterization of the melt-spun Al-30 Pd alloy ribbons. (b) Section view SEM image of the Al-30 Pd alloy after the dealloying under a constant potential of 0.1 V for ~ 84 min.

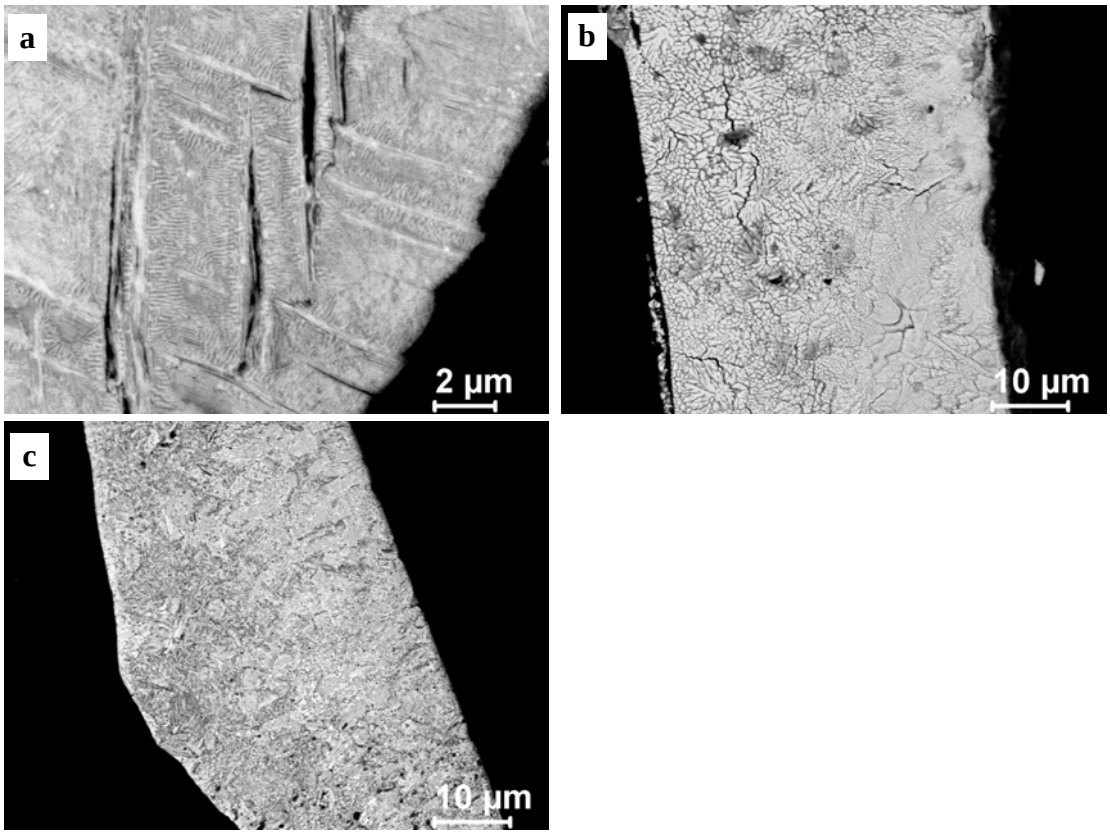

Fig. S3 SEM (section view, in the back scattered mode) characterization of the melt-spun ribbons of (a) Al-40 Ag (b) Al-50 Ag, and (c) Al-25 Ag.

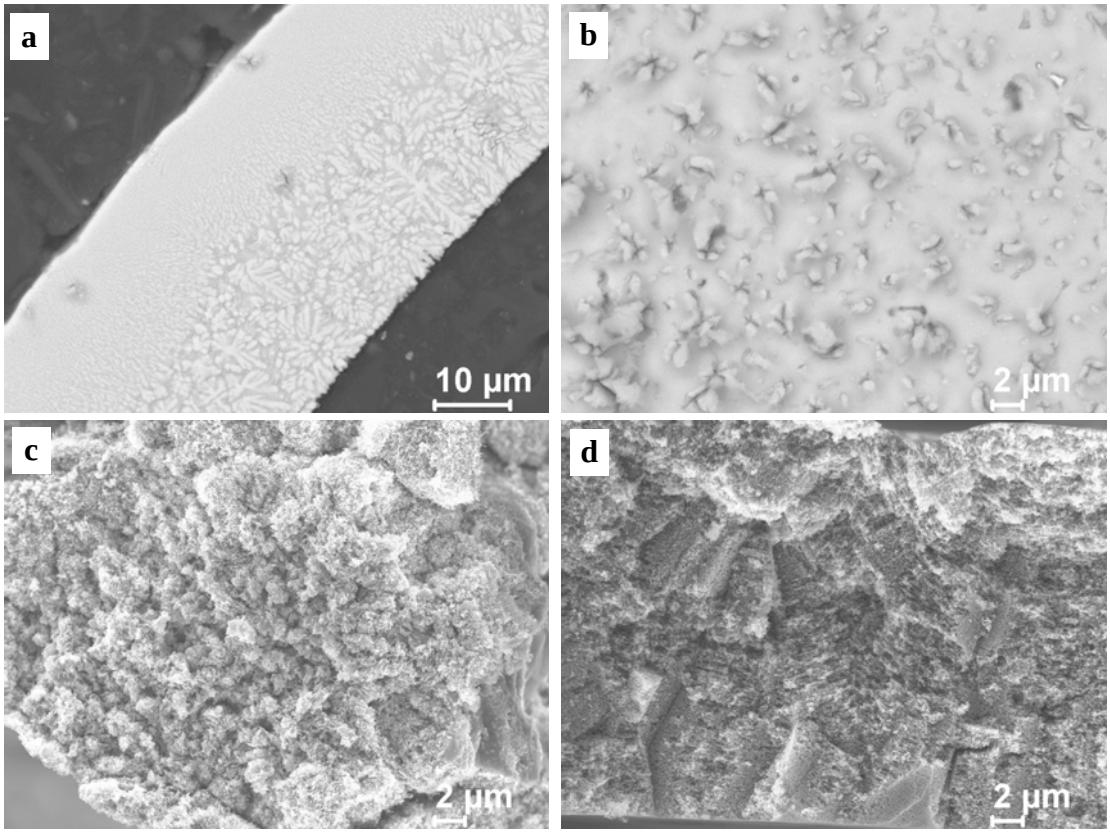

Fig. S4 SEM (section view, in the back scattered mode) characterization of the melt-spun ribbons of (a) Al-40 Cu and (b) Al-50 Cu. (c) and (d) show the section view of the as-dealloyed Al-50 Cu and Al-33 Cu alloys after the dealloying at -0.3 V for 2h and 1 h respectively.

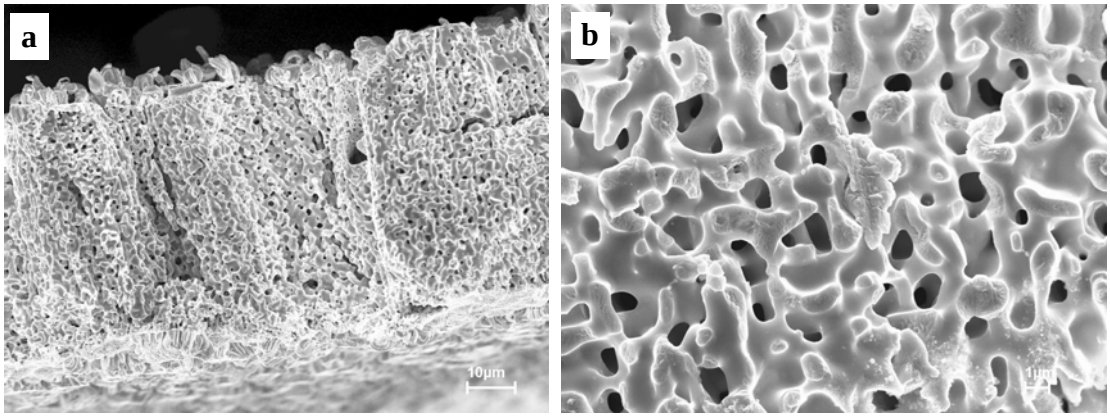

Fig. S5 SEM images showing the microstructure of porous tin through etching of a rapidly solidified $Al_{50}Sn_{50}$ alloy in a 5 wt.% HCl aqueous solution at room temperature.