Figure S1. XRD pattern of Al$_{72.3}$Ni$_{7.8}$Co$_{19.8}$ QC alloy.
Figure S2. XRD patterns of the annealed CNCN-2M, CNCN-5M, and CNCN-10M, respectively.
Figure S3. XPS spectra of the O for the fresh 5 M dealloyed samples.
Figure S4. XPS spectra for the fresh 10 M dealloyed sample: (a) Co 2p, (b) Ni 2p, and (c) O 1s, respectively.
Figure S5. (a) SEM image of the CNCN-5M electrode. The corresponding element mapping images of different elements: (b) cobalt, (c) nickel, and (d) oxygen, respectively.
Figure S6. TEM and HRTEM image of the CNCN-10M products: (a) TEM image and (b)-(c) HRTEM image.
Figure S7. SEM image of the product obtained by the pre-corrosion stage for 12 h.
Figure S8

**Figure S8.** SEM image of the annealed CNCN-5 M samples.