1. SEM

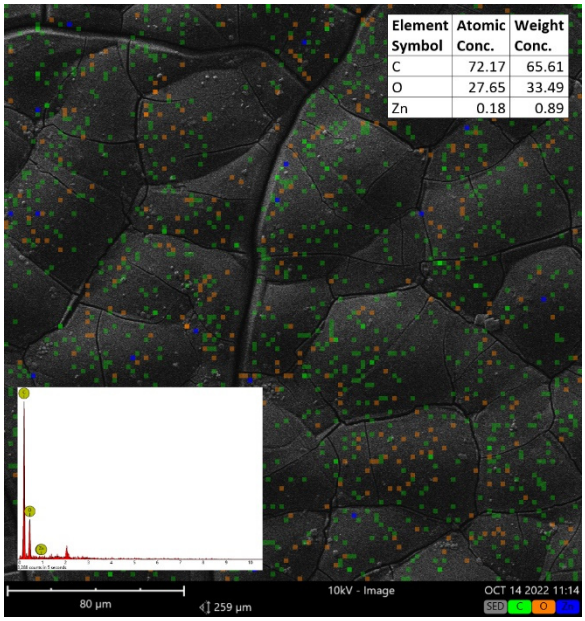

Figure S1. ZnO dispersion in C0.5 sample surfaces at INT2880

2. GRAVIMETRY

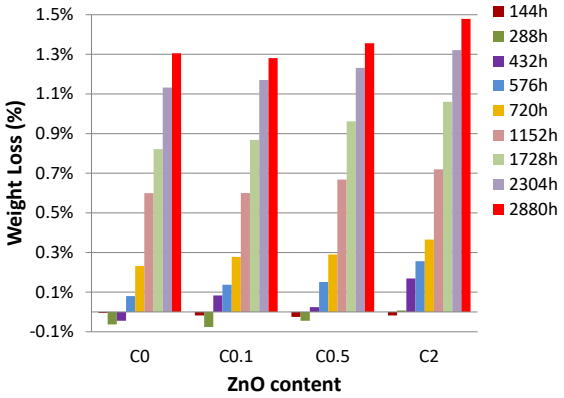

Figure S2. Weight loss (%) including initial 144-hour measurement intervals

3. DIELECTRIC SPECTROSCOPY

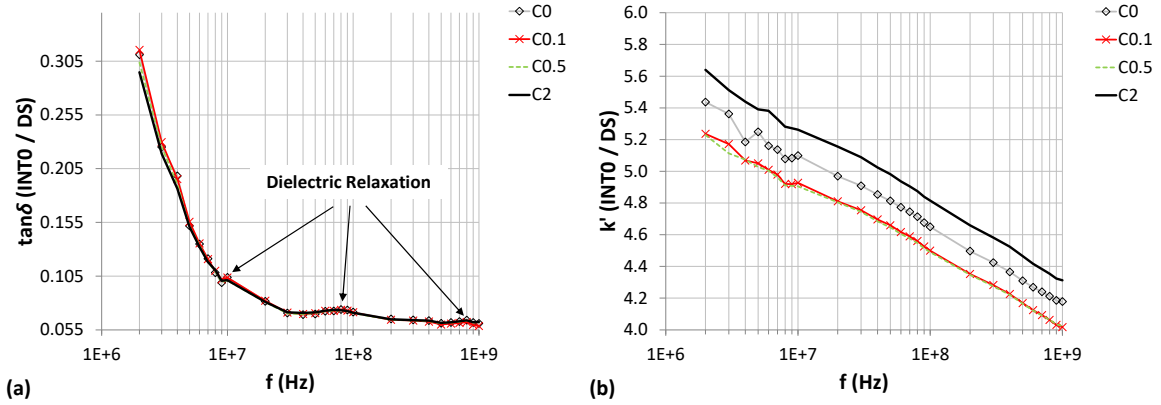

Figure S3.1: Graphic representation of reconditioned samples' dielectric behavior at INT0 in the full measurement range 2×10^6 - 1×10^9 Hz together with dielectric relaxation occurrence **(a)** tanδ, **(b)** k'

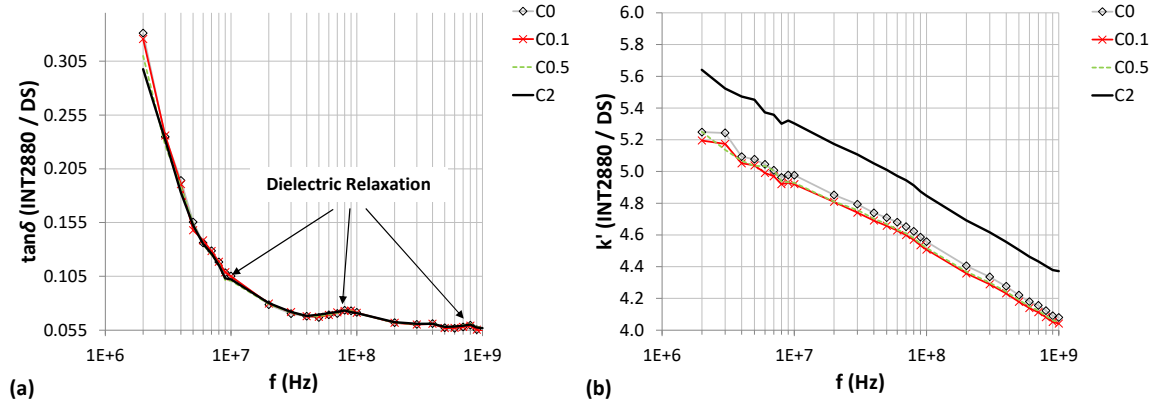

Figure S3.2: Graphic representation of reconditioned samples' dielectric behavior at INT2880 in the full measurement range 2×10^6 - 1×10^9 Hz together with dielectric relaxation occurrence **(a)** tanδ, **(b)** k'

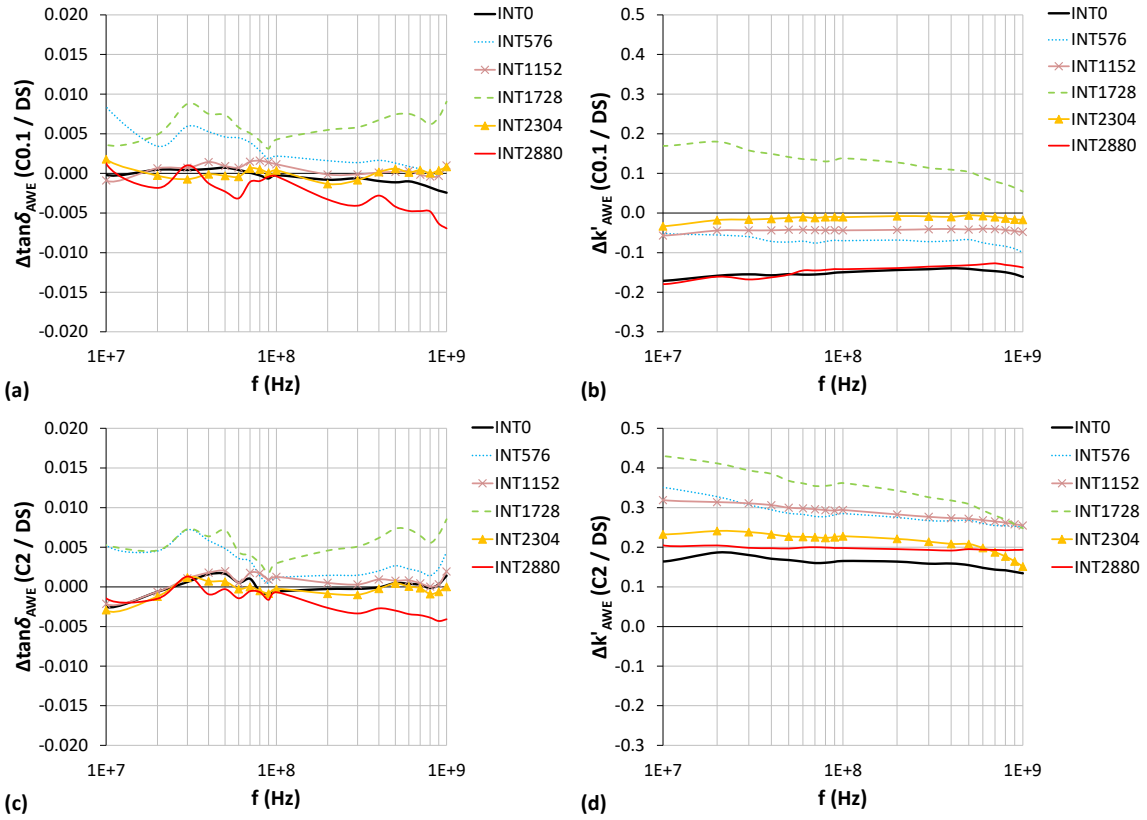

Figure S3.3: Dielectric properties of C0.1 & C2 samples during AWE treatment compared to C0 / INT0 in DS **(a)** $\Delta\tan\delta_{AWE}$ = $\tan\delta_{C0.1/INTx}$ - $\tan\delta_{C0/INT0}$ **(b)** $\Delta k'_{AWE}$ = $k'_{C0.1/INTx}$ - $k'_{C0/INT0}$ **(c)** $\Delta\tan\delta_{AWE}$ = $\tan\delta_{C2/INTx}$ - $\tan\delta_{C0/INT0}$ **(d)** $\Delta k'_{AWE}$ = $k'_{C2/INTx}$ - $k'_{C0/INT0}$

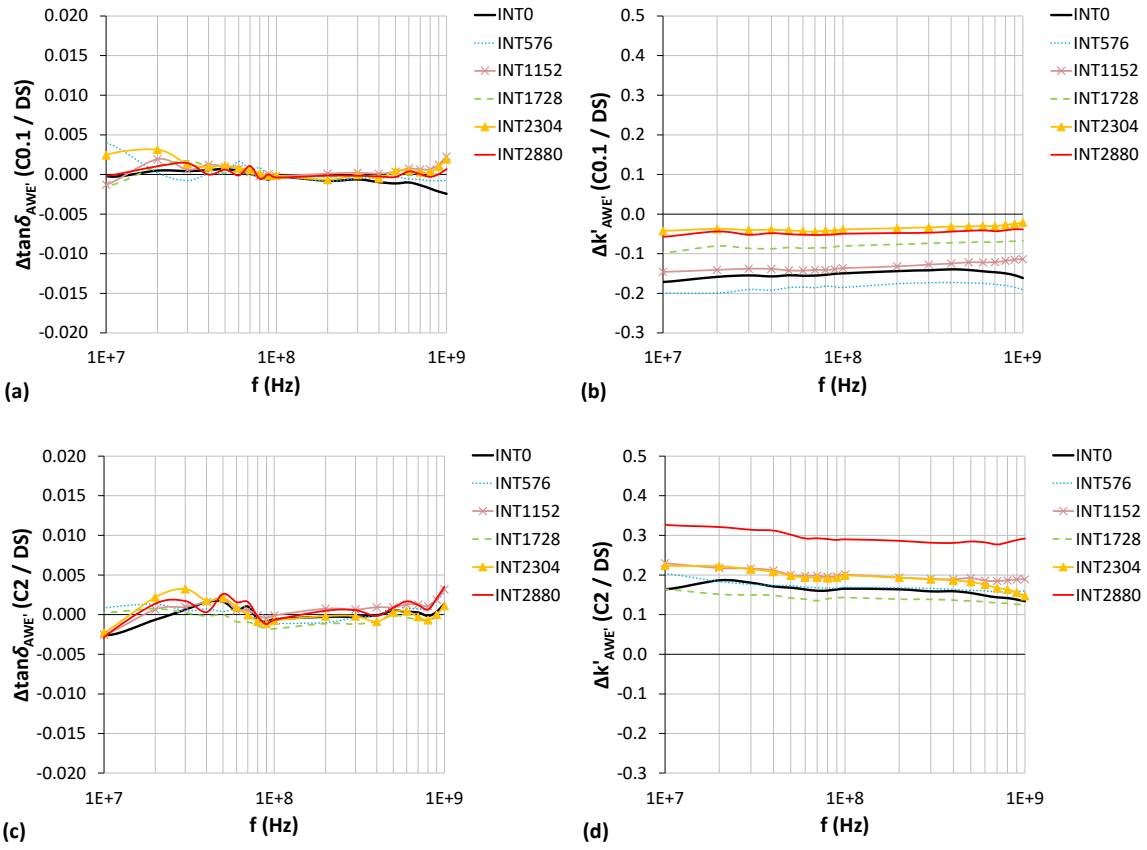

Figure S3.4: Dielectric properties of C0.1 & C2 samples during AWE treatment compared to C0 / INTx in DS **(a)** $\Delta\tan\delta_{AWE'}$ = $\tan\delta_{C0.1/INTx}$ - $\tan\delta_{C0/INTx}$ **(b)** $\Delta k'_{AWE'}$ = $k'_{C0.1/INTx}$ - $k'_{C0/INTx}$ **(c)** $\Delta\tan\delta_{AWE'}$ = $\tan\delta_{C2/INTx}$ - $\tan\delta_{C0/INTx}$ **(d)** $\Delta k'_{AWE'}$ = $k'_{C2/INTx}$ - $k'_{C0/INTx}$