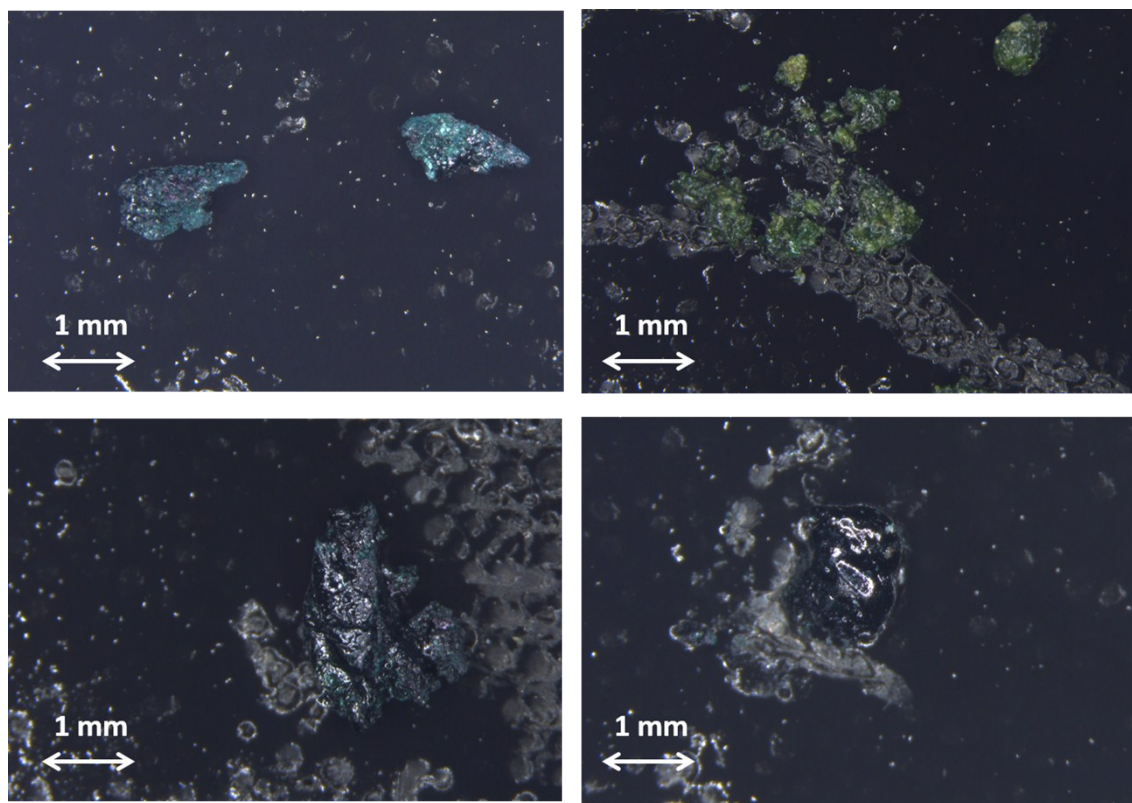


### Supplementary information

**Figure S.1.** Optical microscopy images of a MG deposit on graphite a) before and after application of a sequence of potentials of b) 0.50 V, c) -0.25 V, d) 0.25 V for 5 min in contact with 0.10 M NaCl.



**Figure S.2.** ATR-FTIR spectra of MG crystals a) before and after application of successive potential inputs for 10 min at b) 1.0 V and c)  $-0.5$  V in contact with 0.10 M NaCl aqueous solution.

