Electronic Supplementary Material (ESI) for Environmental Science: Water Research & Technology.

Insight into the corrosion inhibition of iron anode with electro-deposited polyaniline during the electrocoagulation treatment process of electroplating wastewater

Jie Yu[a], Yunxiao Liu[a], Han Wang [a, b], Qun Yan[a, b, c] *, Jing Luo[d]

a. School of Environmental and Civil Engineering, Jiangnan University, Wuxi 214122, China.

b. Jiangsu Key Laboratory of Anaerobic Biotechnology, Wuxi 214122, China.

c. Jiangsu Collaborative Innovation Center of Technology and Material of Water Treatment, Suzhou 215011, China.

d. School of Chemical and Material Engineering, Jiangnan University, Wuxi 214122, China.

* Corresponding author, Tel.: +86-510-85197872. E-mail: yanqun@jiangnan.edu.cn (Q. Yan)

The following is included as additional supporting materials for this paper:

Table S1. Water quality index of actual electroplating effluents

Water quality index	zinc concentration (mg L^{-1})	nickel concentration (mg L^{-1})	pH	electrical conductivity (mS cm^{-1})	COD (mg L^{-1})
Value	17.51	6.35	7.28	5.14	414.54

Anode plate	Voltage (V)	Energy consumption (Wh)	Specific energy consumption

			(kWh/m3)
Iron	6.29	2.516	10.064
Iron modified with PPy-PTS	6.67	2.668	10.672
Iron modified with PANI-MMT	6.83	2.732	10.928

Table S2. Energy consumption of different anodes.

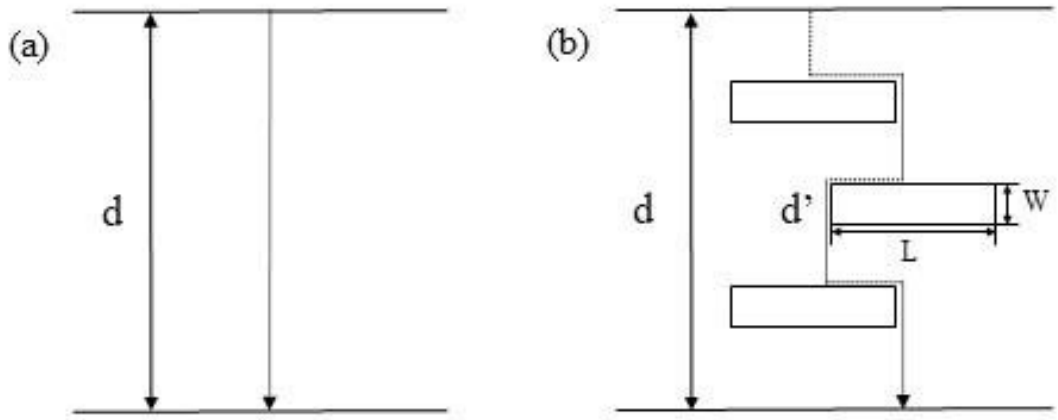

Fig. S1. Gas-liquid barrier model without (a) or with (b) layered silicate.

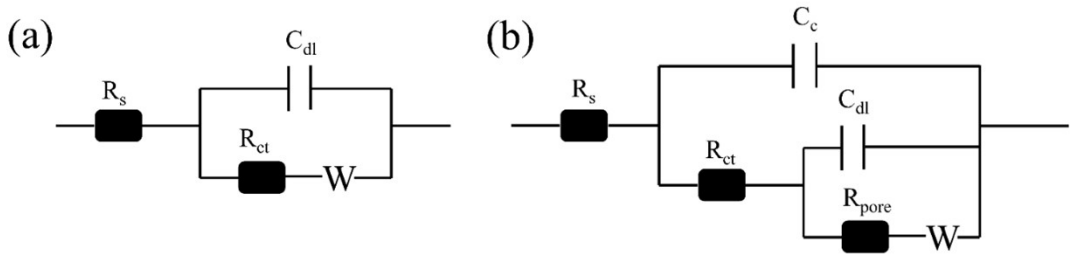

Fig. S2. The equivalent circuit diagrams of bare iron electrode (a) and iron electrode coated with polymer (b).

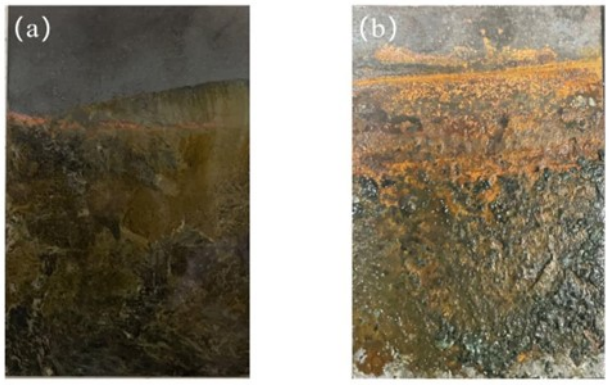

Fig. S3. The corrosion condition on the surface of plate modified with PANI-MMT(a) and PPy-PTS(b).

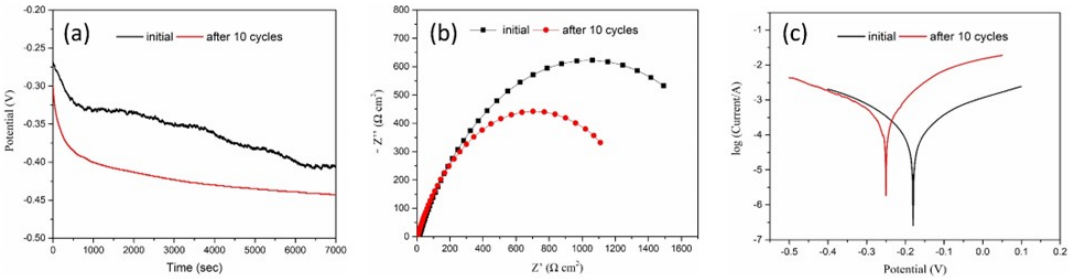

Fig. S4. the Open circuit potential (a), Nyquist plots (b) and Tafel plots (c) of PANI-MMT coated anode after 10 cycles.