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Electronic Supplementary Information

Polydopamine Functionalized Transparent Conductive Cellulose Nanopaper with Long-Term Durability

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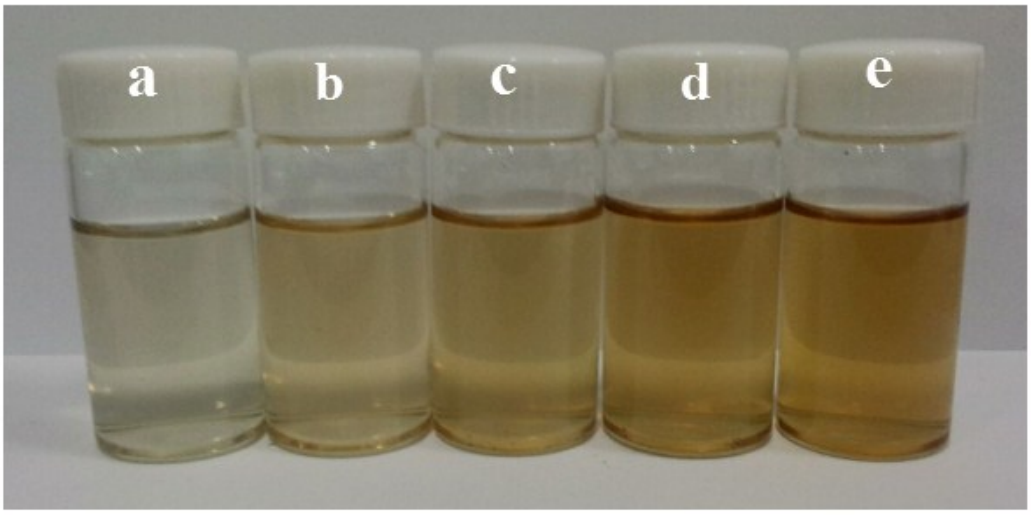

Fig. S1. Digital photographs of the PDA@NFC solutions treated with 0, 0.5, 1.0, 1.5, and 2.0 g/L of DPA dispersions.

℃	70	80	90	100	110
T% (550nm)	89.29	93.74	90.93	88.20	84.77
R_s (ohm/sq)	13.1	13.7	14.2	14.4	14.8

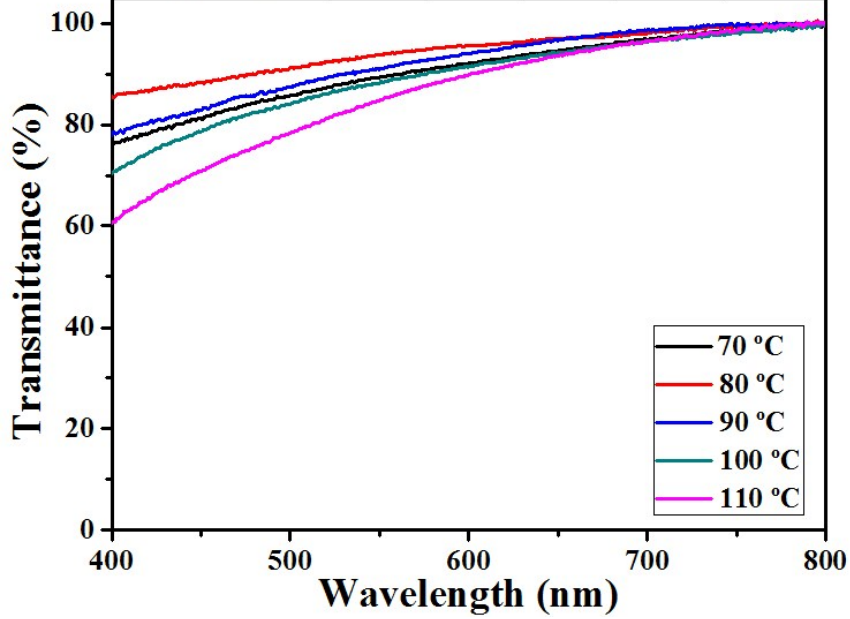

Fig. S2. Transparent conductive performance of PDA@NFC-AgNWs TCCNP at different drying temperature.

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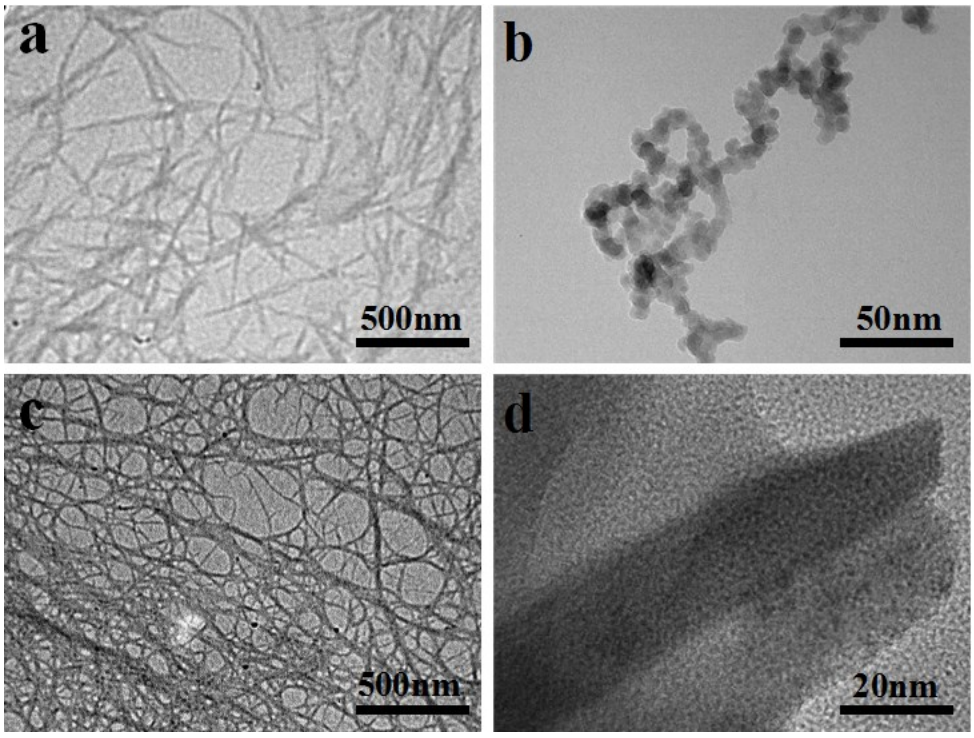

Fig. S3. TEM images of (a) NFC, (b) PDA and (c,d) PDA@NFC.

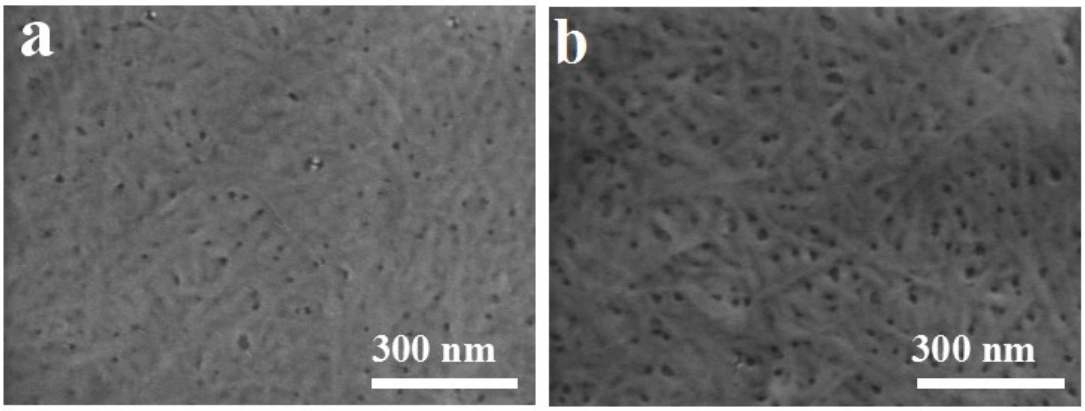

Fig. S4. SEM images of (a) NFC CNP and (b) PDA@NFC CNP.

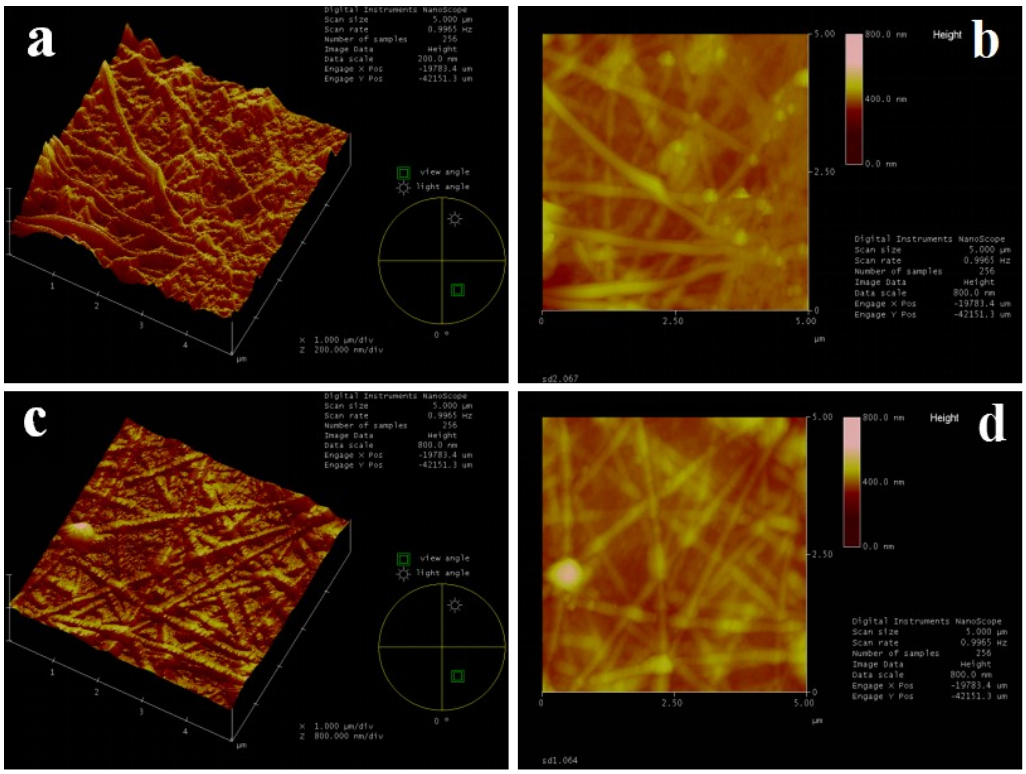

Fig. S5. AFM images of (a, b) NFC-AgNWs TCCNP and (c, d) PDA@NFC-AgNWs TCCNP.

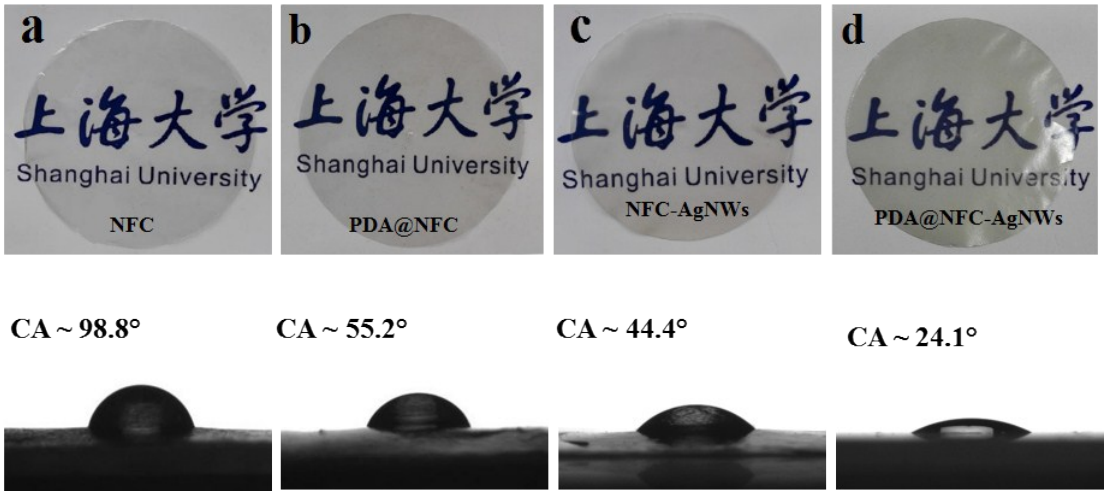

Fig. S6. Contact angles of (a) pristine NFC, (b) PDA@NFC, (c) NFC-AgNWs, and (d) PDA@NFC -AgNWs nanopapers.

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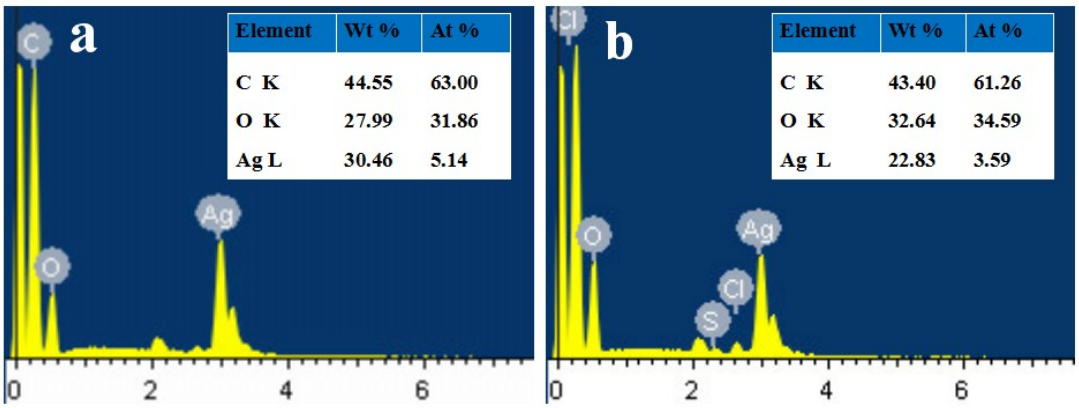


Fig. S7. Energy dispersive X-ray spectroscopy (EDS) spectra of the NFC-AgNWs TCCNP (a) before and (b) after exposure in air for 150 days.

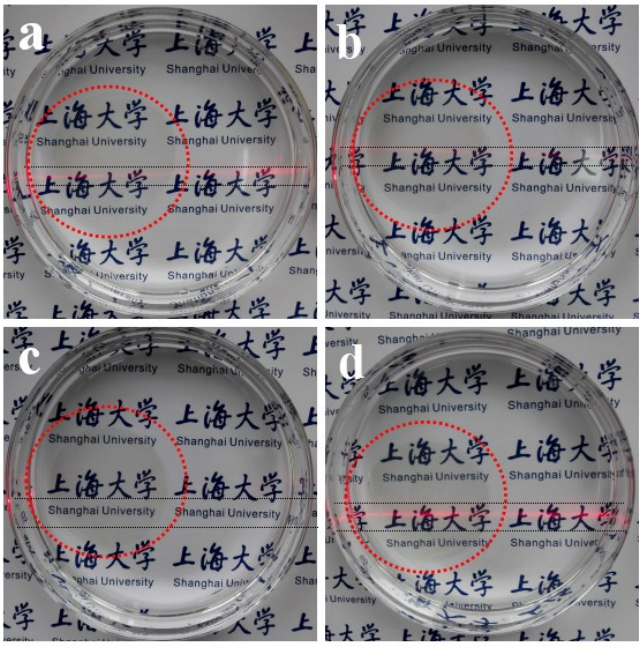
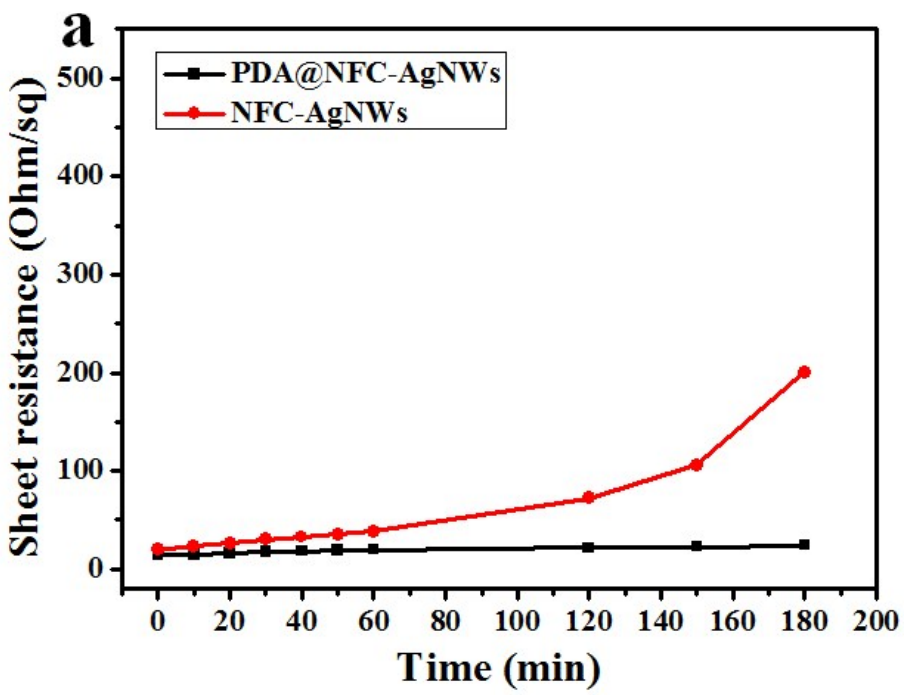
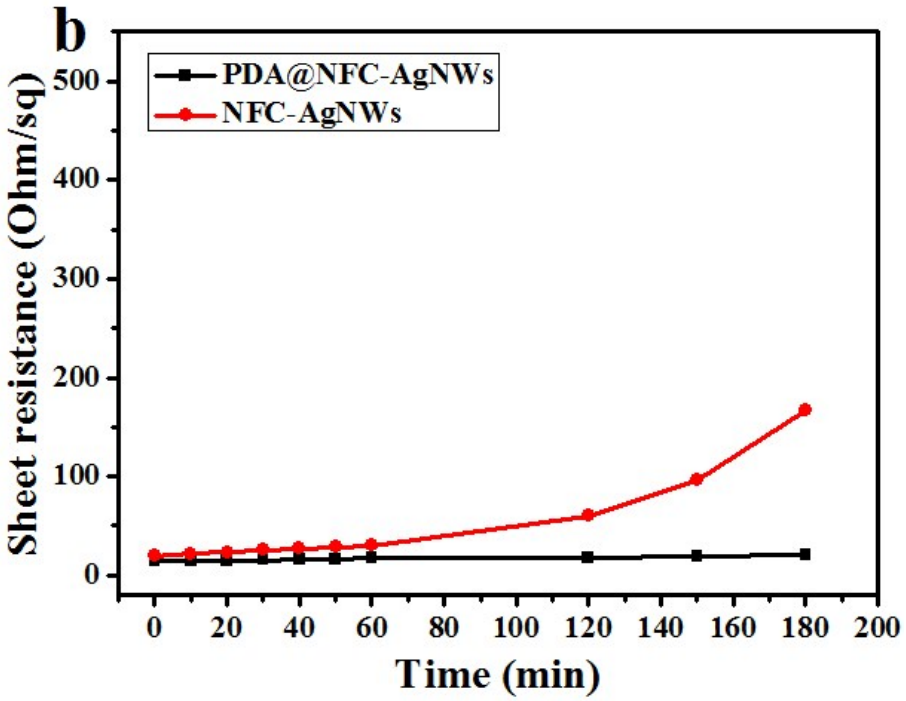


Fig. S8. Digital photographs of PDA@NFC -AgNWs TCCNP immersed in (a) pH=3, HNO_3 solution, (b) 4 wt% NaOH solution, (c) 4 wt% NaCl solution and (d) 4 wt% Na_2S solution for 180 minutes, respectively.


a
PDA@NFC-AgNWs
NFC-AgNWs
Sheet resistance (Ohm/sq)
0
100
200
300
400
500
0
20
40
60
80
100
120
140
160
180
200
Time (min)


b
PDA@NFC-AgNWs
NFC-AgNWs
Sheet resistance (Ohm/sq)
0
100
200
300
400
500
0
20
40
60
80
100
120
140
160
180
200
Time (min)

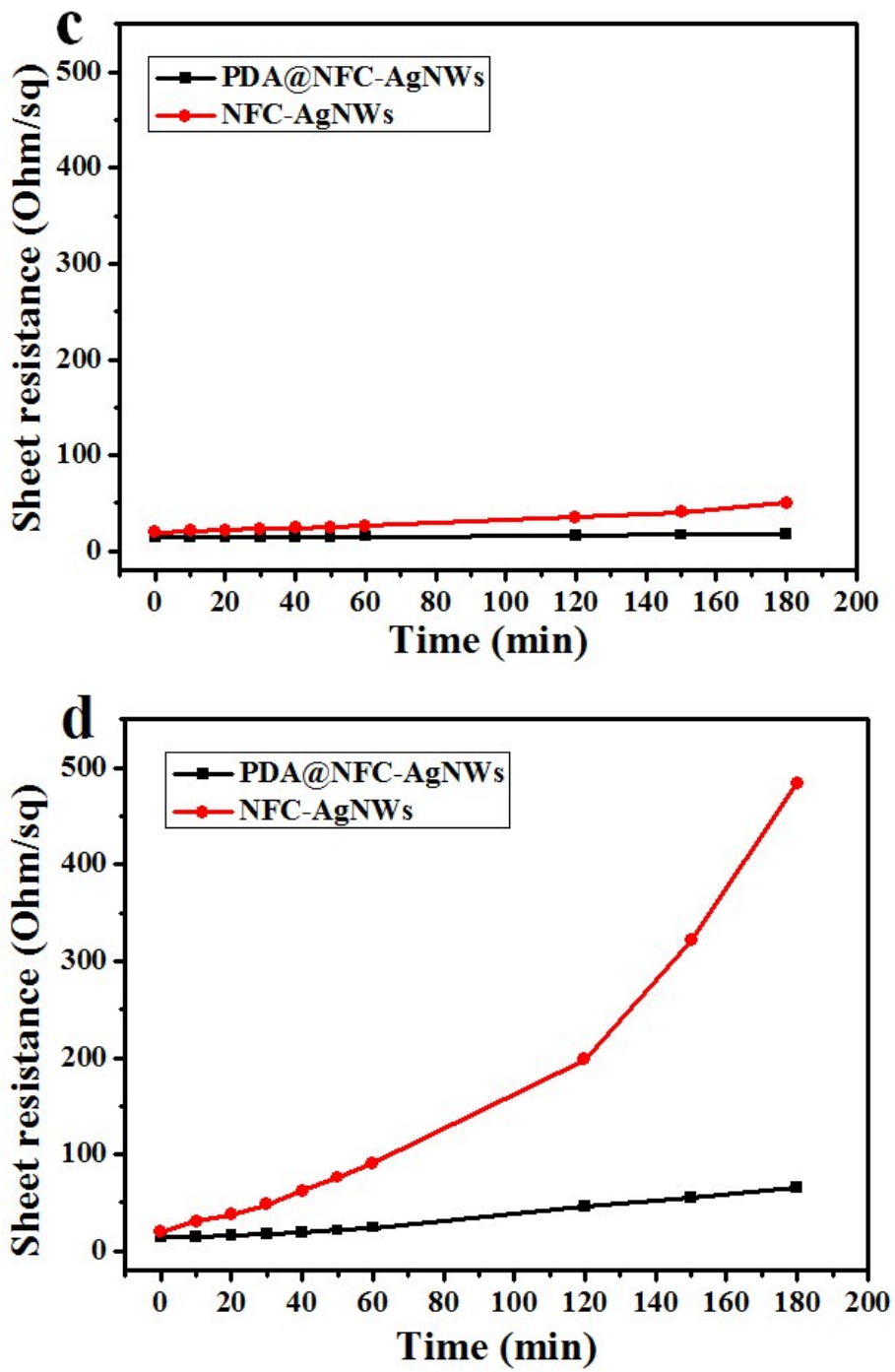


Fig. S9. Sheet resistance as a function of immersing time for NFC-AgNWs TCCNP and PDA@NFC-AgNWs TCCNP in (a) pH=3, HNO_3 solution, (b) 4 wt% NaOH solution, (c) 4 wt% NaCl solution and (d) 4 wt% Na_2S solution, respectively.