

Supporting information

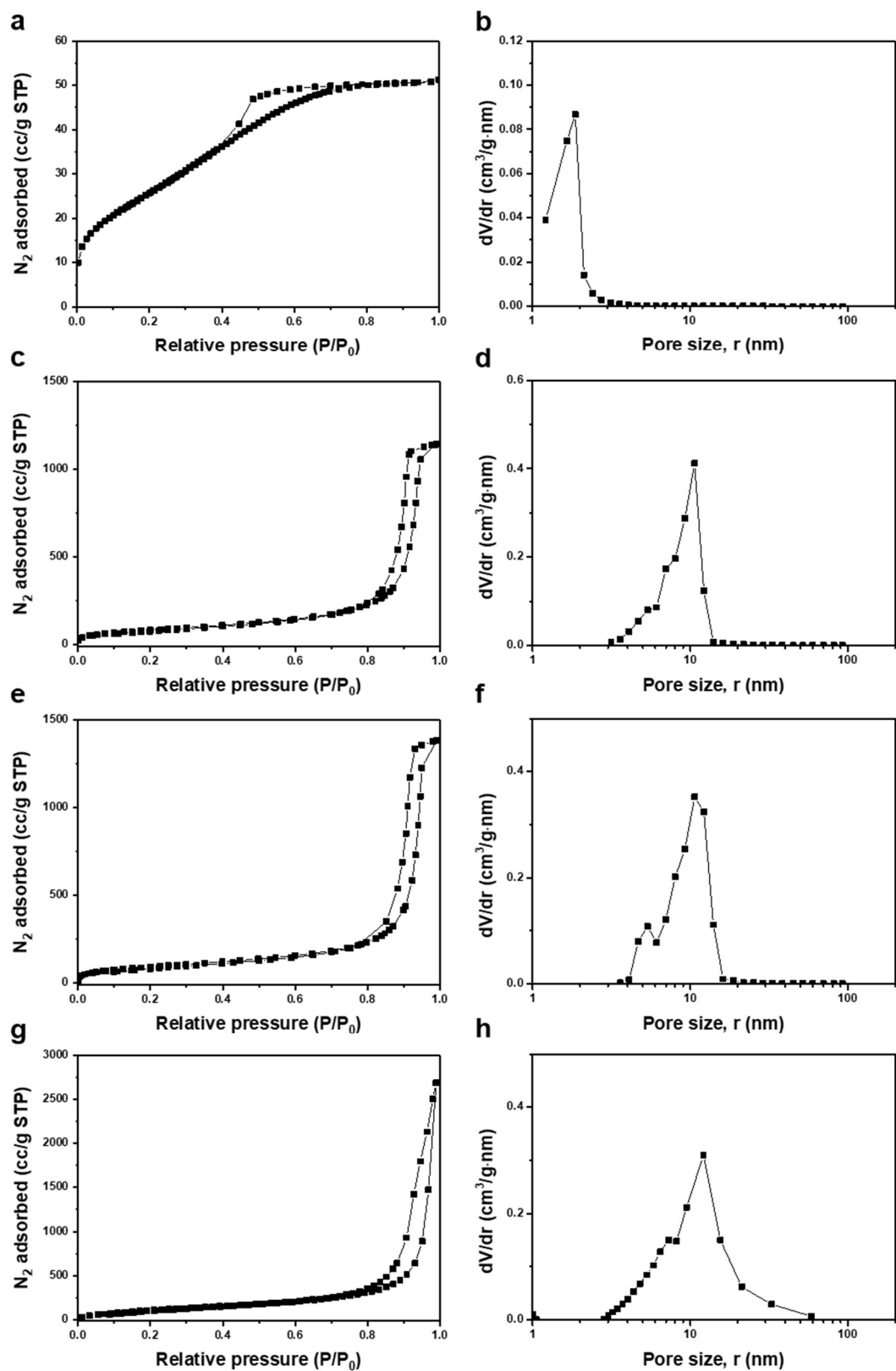
# **Eco-Friendly Synthesis of Water-Glass-Based Silica Aerogels via Catechol-Based Modifier**

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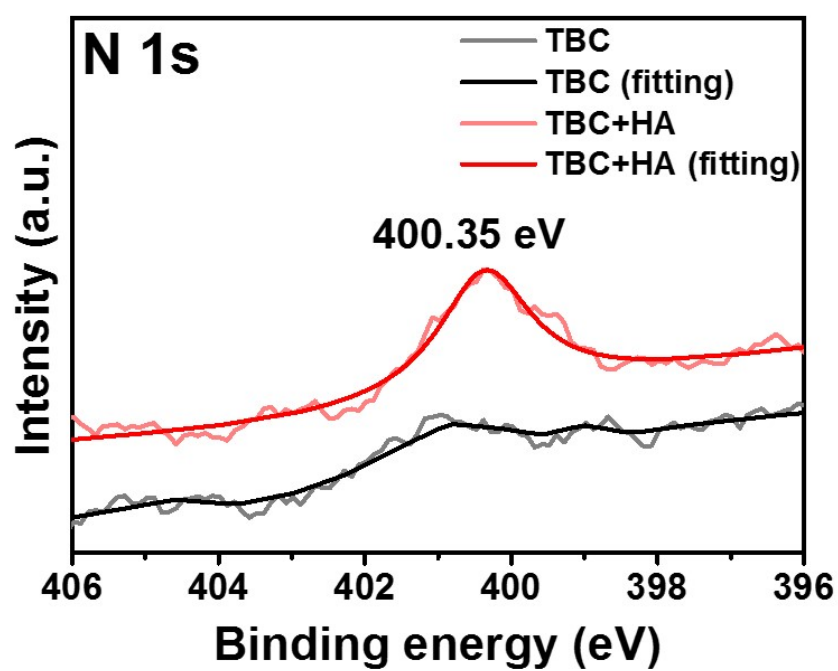
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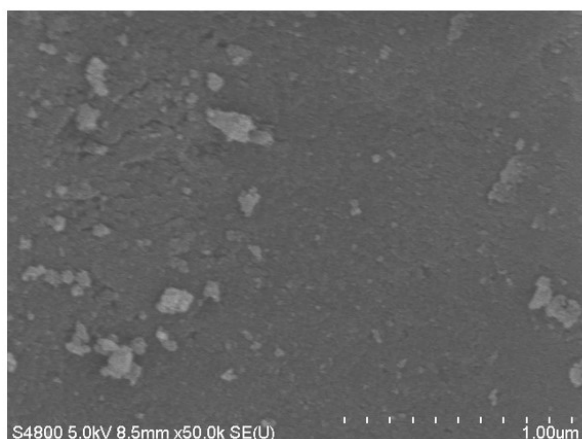


**Figure S1.**  $N_2$  adsorption-desorption isotherms and the corresponding BJH pore size distributions of (a,b) xerogel, (c,d) TBC, (e,f) TBC+HA, and (g,h) TMCS-modified aerogel.

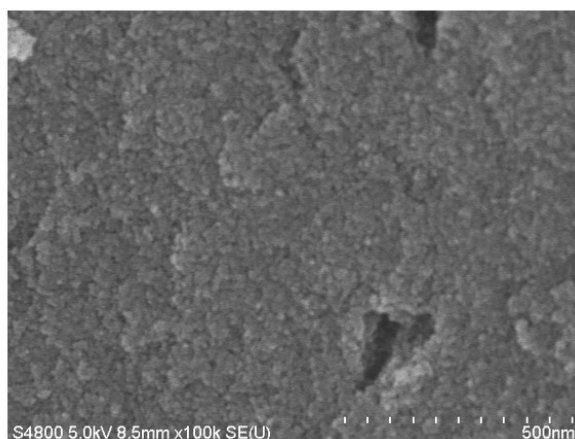


**Figure S2.** N 1s XPS spectra of TBC and TBC+HA-modified aerogel.

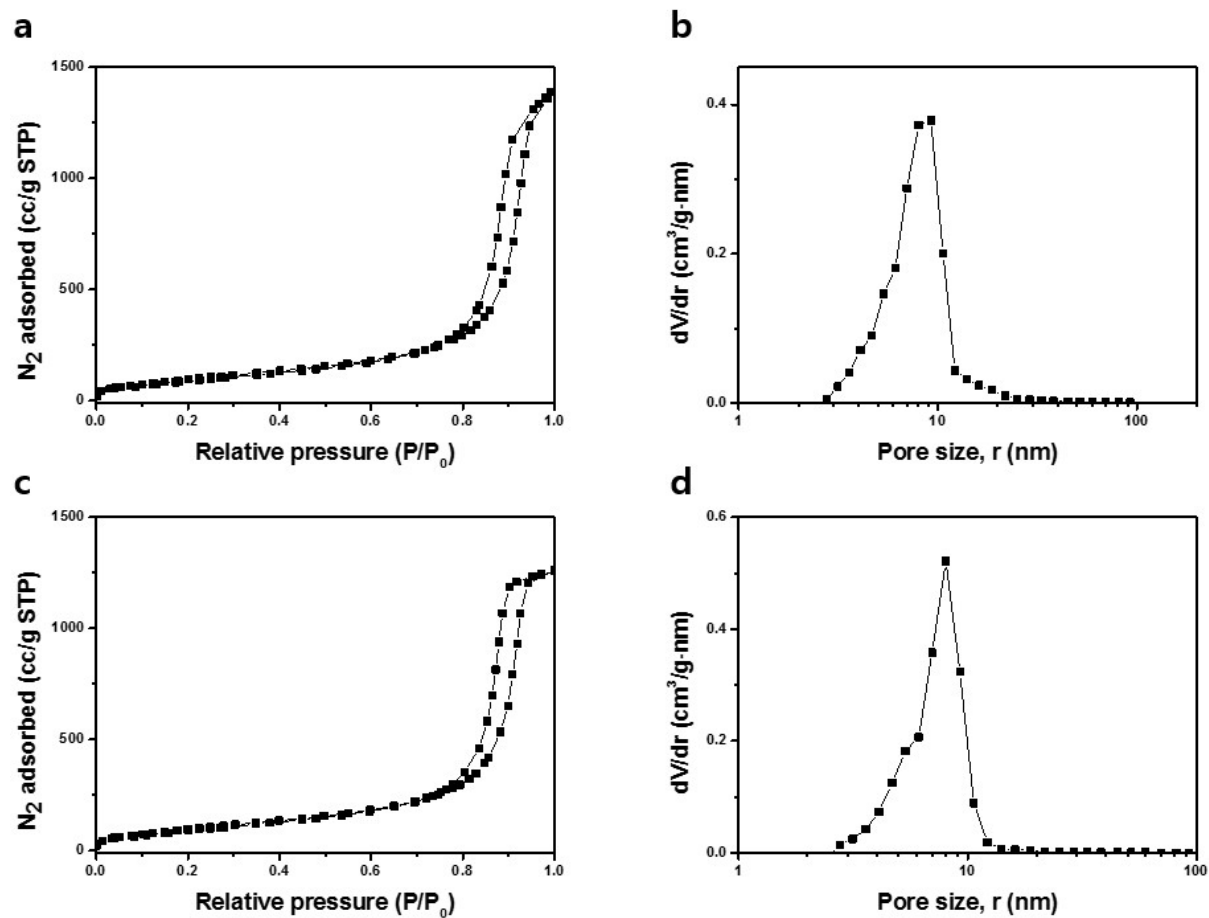
**a**



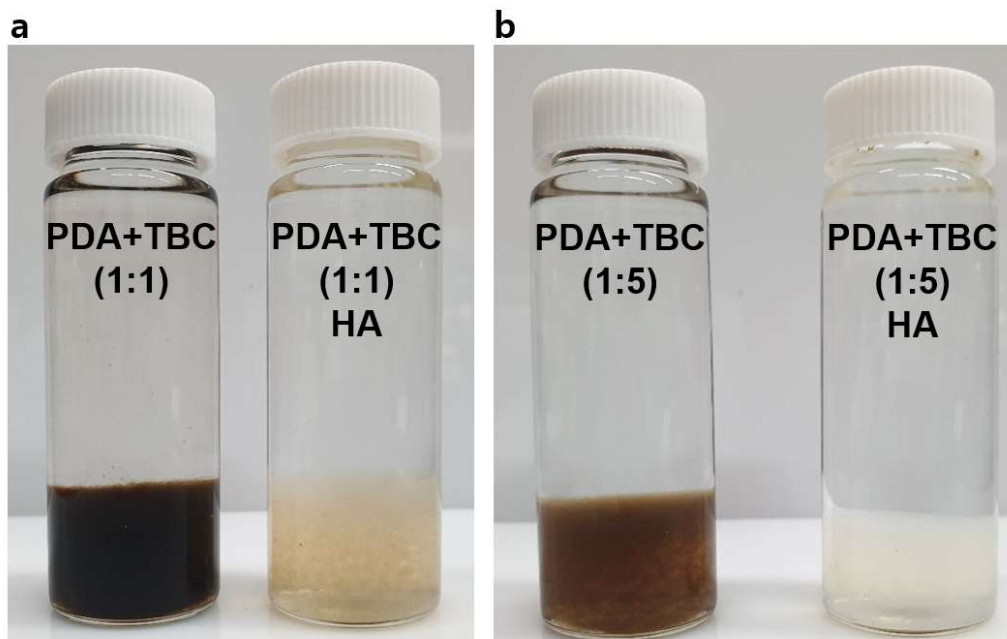
**b**



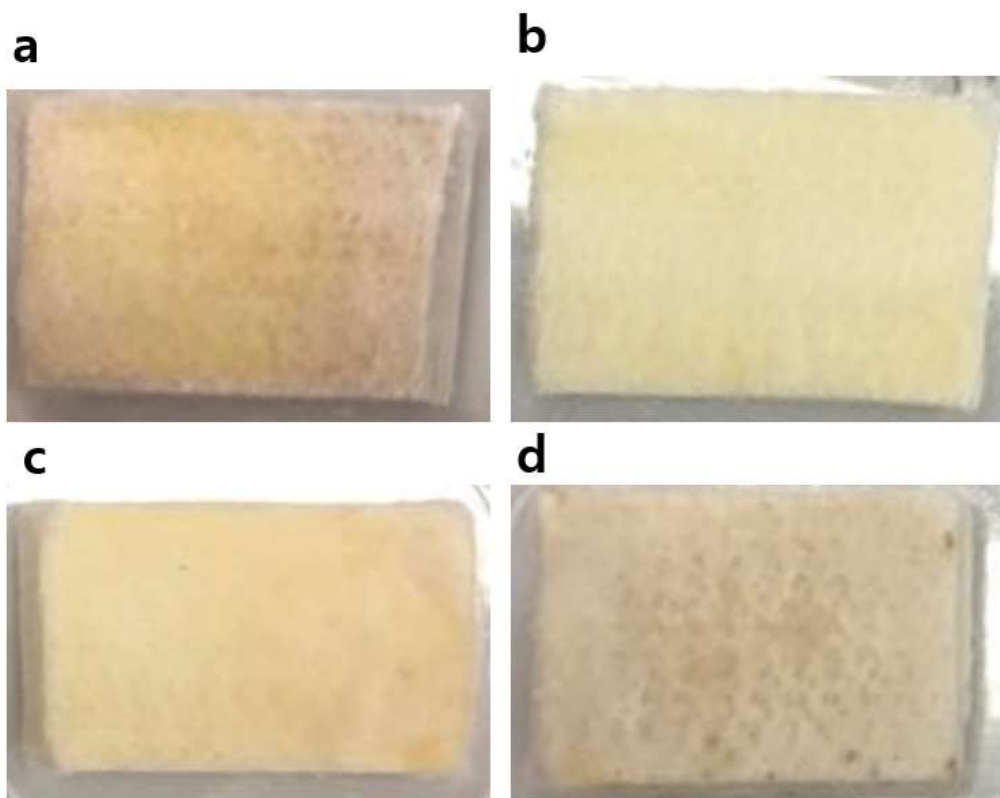
**Figure S3.** SEM images of PDA+HA-modified aerogel at different magnifications: (a) 50k and (b) 100k.



**Figure S4.**  $N_2$  adsorption-desorption isotherms and the corresponding BJH pore size distributions of (a,b) PDA+TBC and (c,d) PDA+TBC+HA-modified aerogel.



**Figure S5.** Digital images of various catechol-modified powder aerogels after residual modifier washing steps. Powder aerogels, modified with (a) PDA+TBC (1:1) and PDA+TBC+HA (1:1) and (b) PDA+TBC (1:5) and PDA+TBC+HA (1:5), were soaked in a mixture of ethanol and distilled water.



**Figure S6.** Digital images of glass wool sheets impregnated by (a) xerogel, (b) TBC+HA, (c) PDA+TBC+HA, and (d) TMCS-modified silica aerogel.