Supplementary Figures

Reversible colour changes of binary films composed of azobenzene-based amorphous molecular materials and *p*-toluene sulfonic acid in response to exhaled breath

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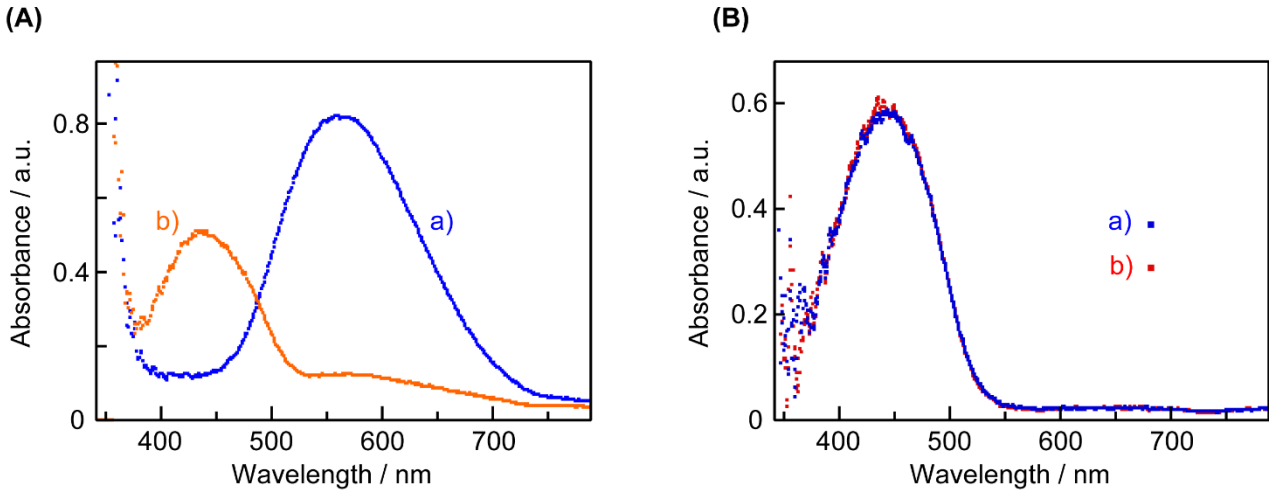


Fig. S1. Electronic absorption spectral changes of (A) PBAB–TsOH film and (B) BMAB film without TsOH. (a) at ambient atmosphere. (b) when breathing onto the film.

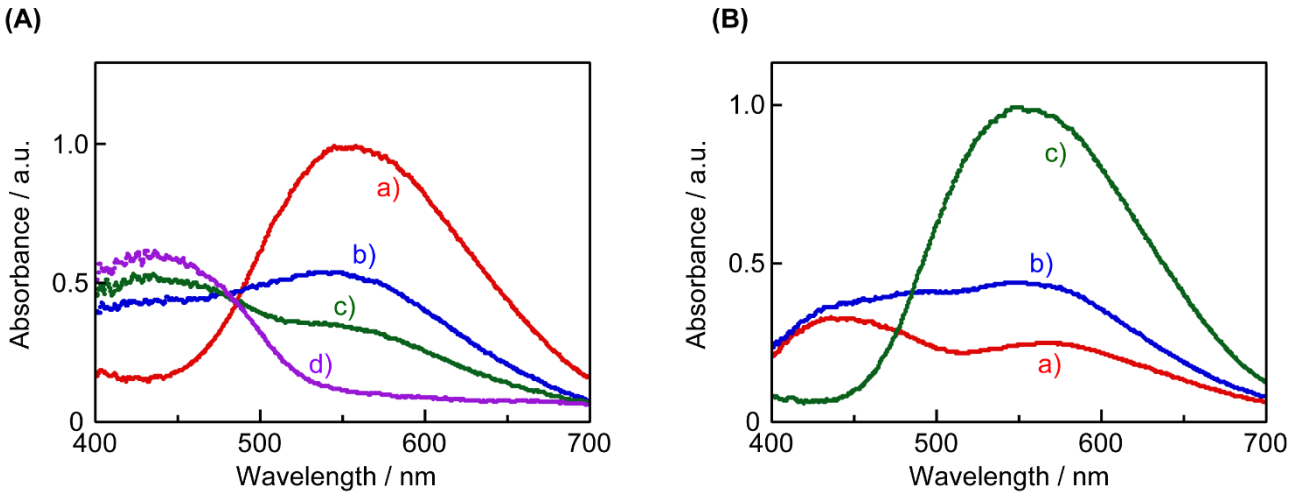


Fig. S2. (A) Electronic absorption spectra of BMAB–TsOH film at a variety of relative humidity (RH). RH = (a) ca. 40%, (b) ca. 50%, (c) ca. 60%, (d) ca. 70%. (B) Electronic absorption spectra of the binary films of BMAB and TsOH with molar ratios of (a) ca. 1:0.5, (b) ca. 1:1, and (c) ca. 1:2.

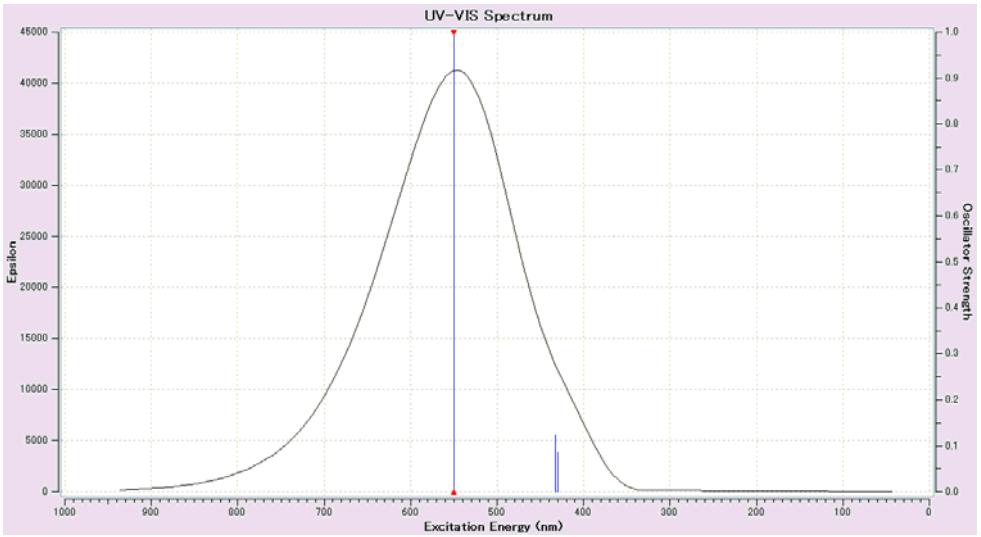
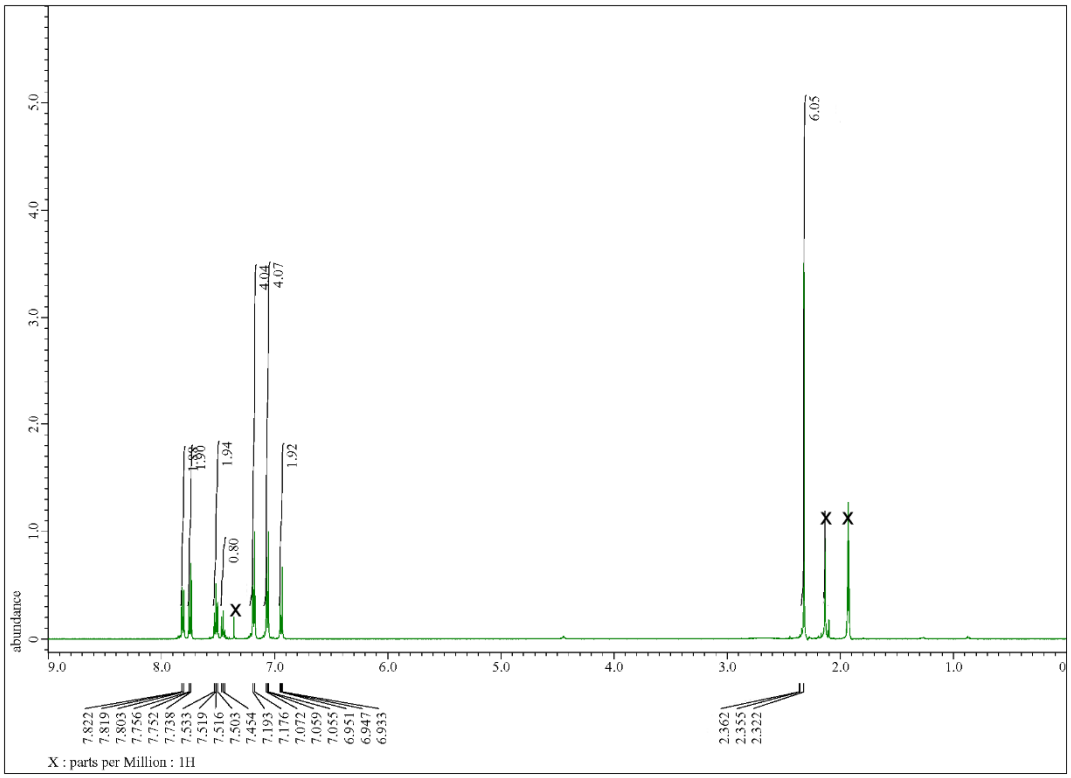


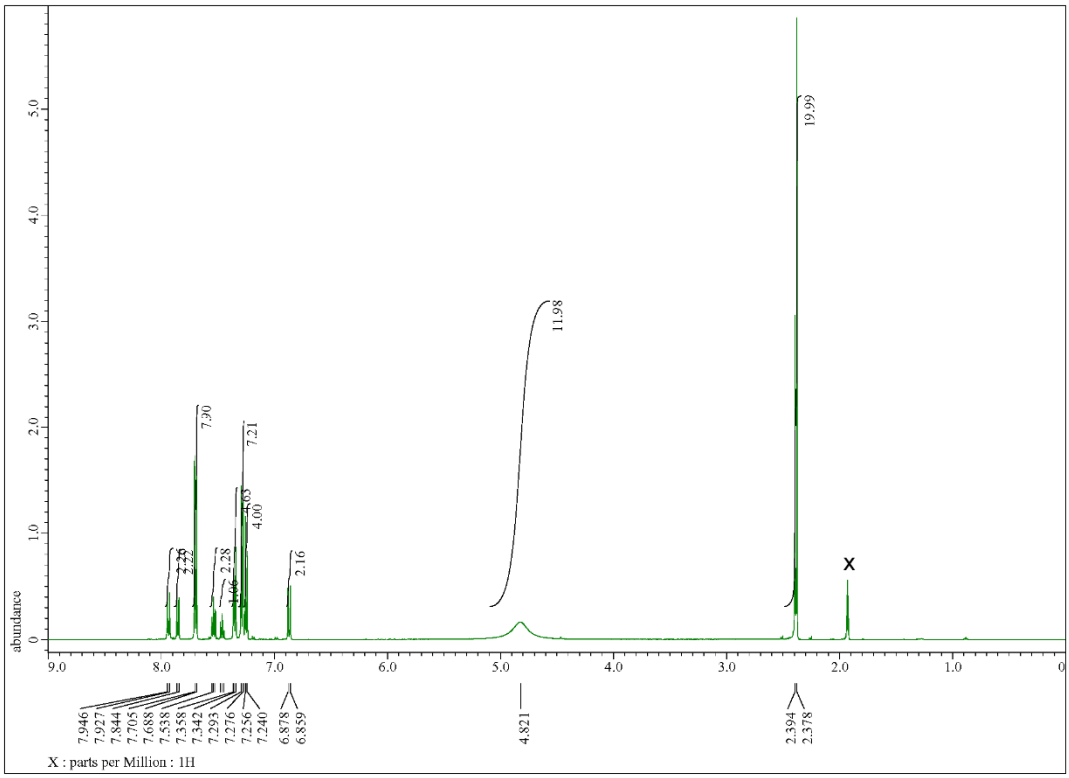
Fig. S3. Electronic absorption spectrum of BMAB-H^+ predicted by ab initio calculation based on density-function theory at B3LYP/6-31G(d,p) level performed with the Gaussian 09.

(a)



(**Fig. S4.** Continued to next page.)

(b)



(c)

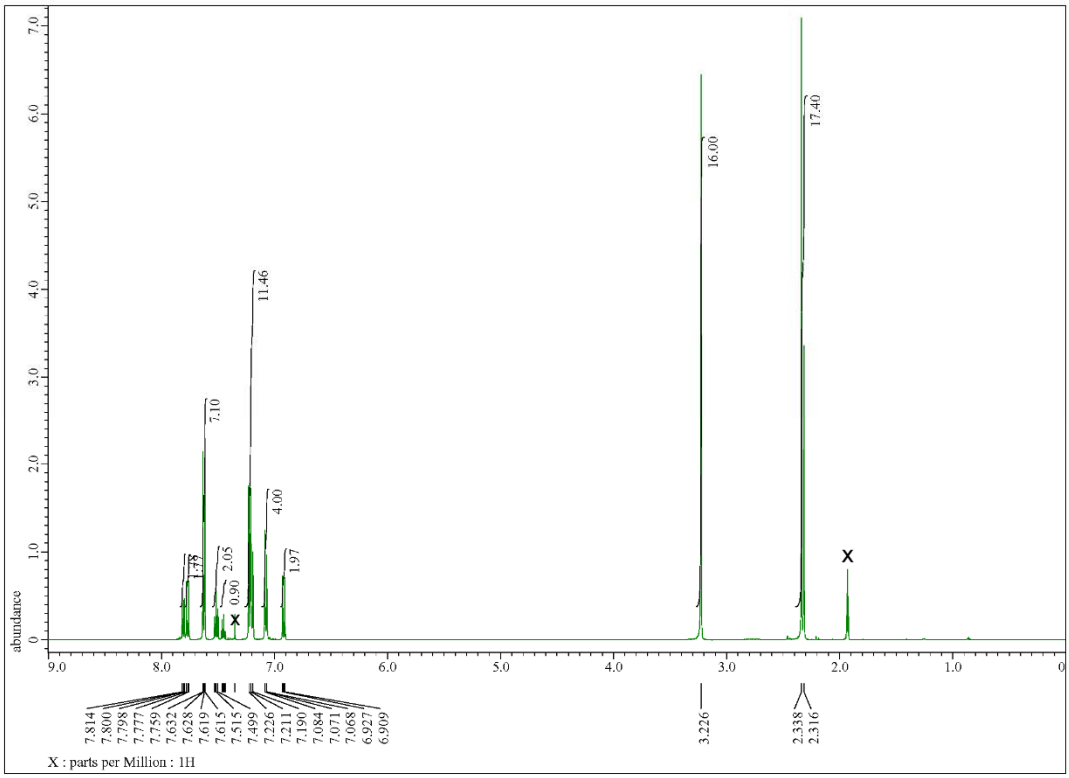


Fig. S4. ^{1}H NMR spectra for BMAB-TsOH-D_2O system in CD_3CN. (a) BMAB. (b) BMAB-TsOH·H_2O ([TsOH]/[BMAB] = ca. 4). (c) After addition of excess D_2O into the solution of BMAB-TsOH·H_2O.