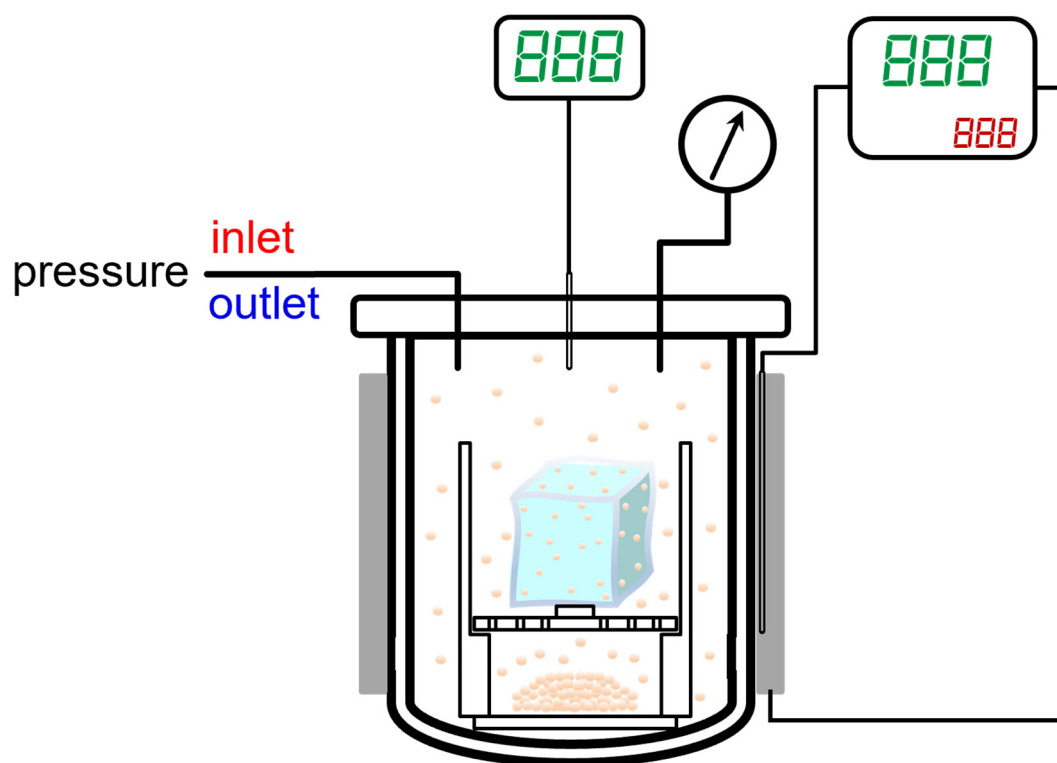
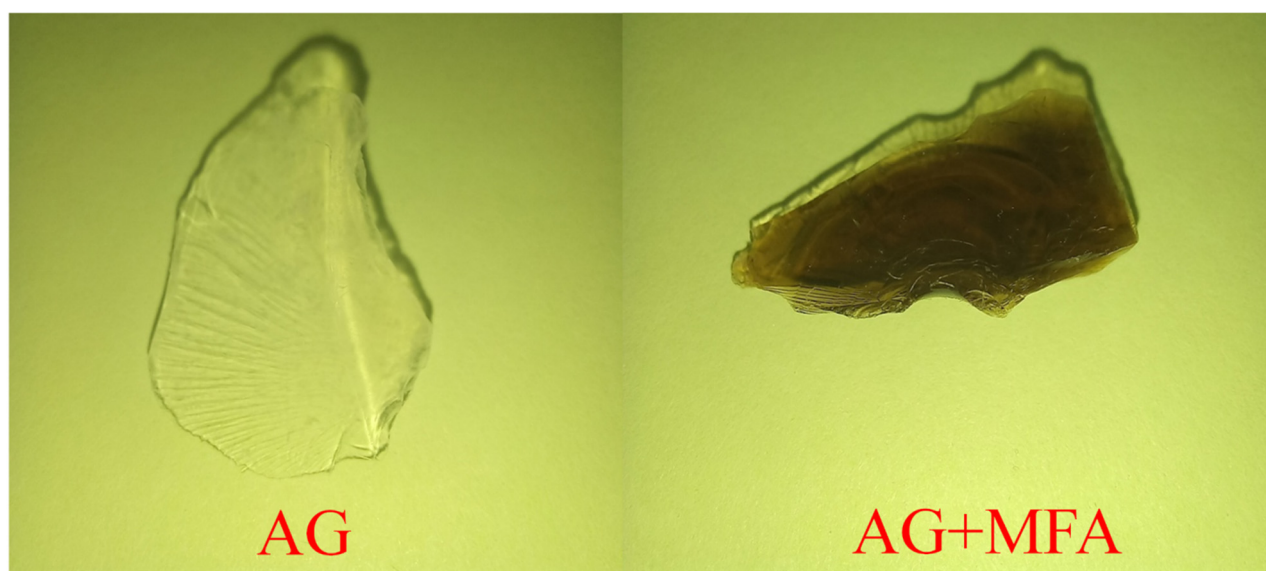


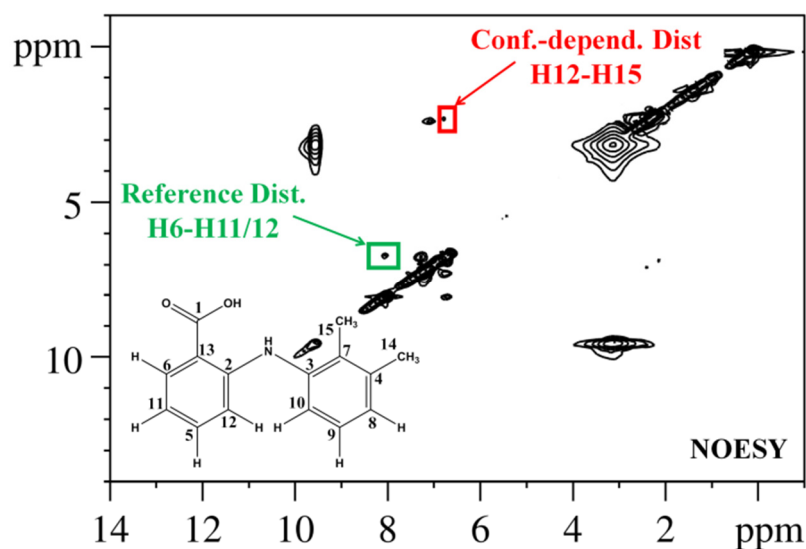
## Supplementary Materials



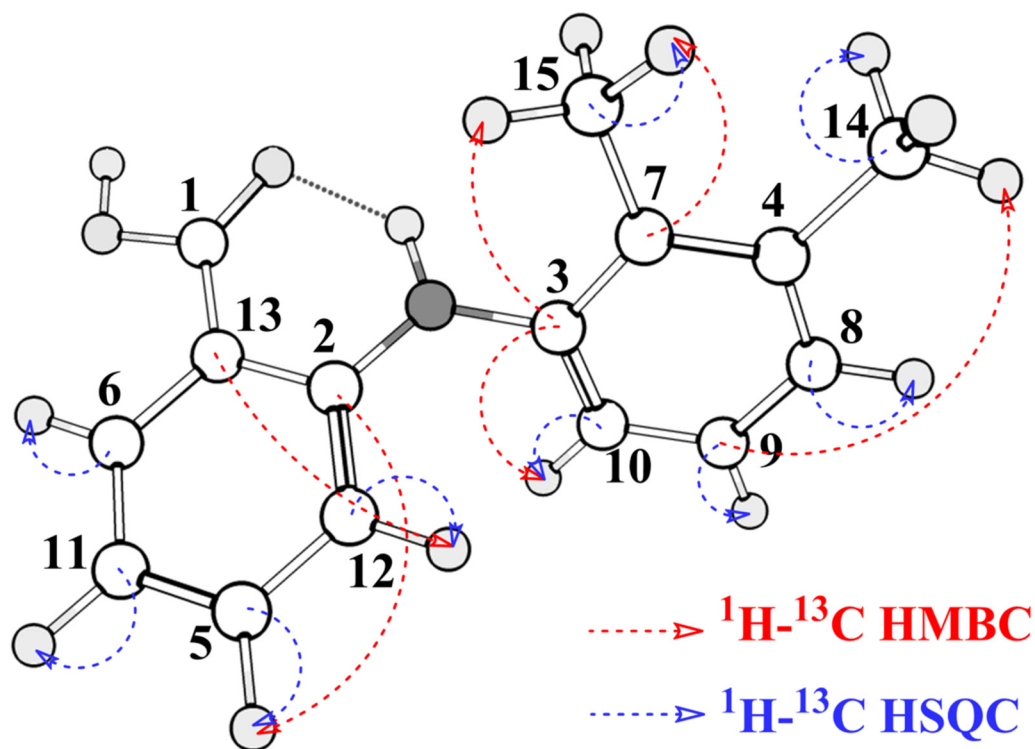
**Figure S1.** A schematic diagram of an autoclave with a system separating the initial components for impregnating MFA into aerogels.



**Figure S2.** Samples of pure aerogel (transparent) and aerogel impregnated with mefenamic acid (dark yellow color).



**Figure S3.**  $^1\text{H}$ - $^1\text{H}$  NOESY spectra of mefenamic acid in  $\text{scCO}_2$  +  $\text{DMSO-d}_6$  recorded in the presence of an aerogel doped with mefenamic acid at  $45^\circ\text{C}$  and 9 MPa.



**Figure S4.** The structure of the mefenamic acid molecule with atom numbering. Red arrows show the intramolecular interactions detected by the  $^1\text{H}$ - $^{13}\text{C}$  HMBC method between hydrogen and carbon atoms separated by several chemical bonds. In contrast, blue arrows indicate the intramolecular interactions detected by the  $^1\text{H}$ - $^{13}\text{C}$  HSQC method between hydrogen and carbon atoms separated by a single chemical bond.

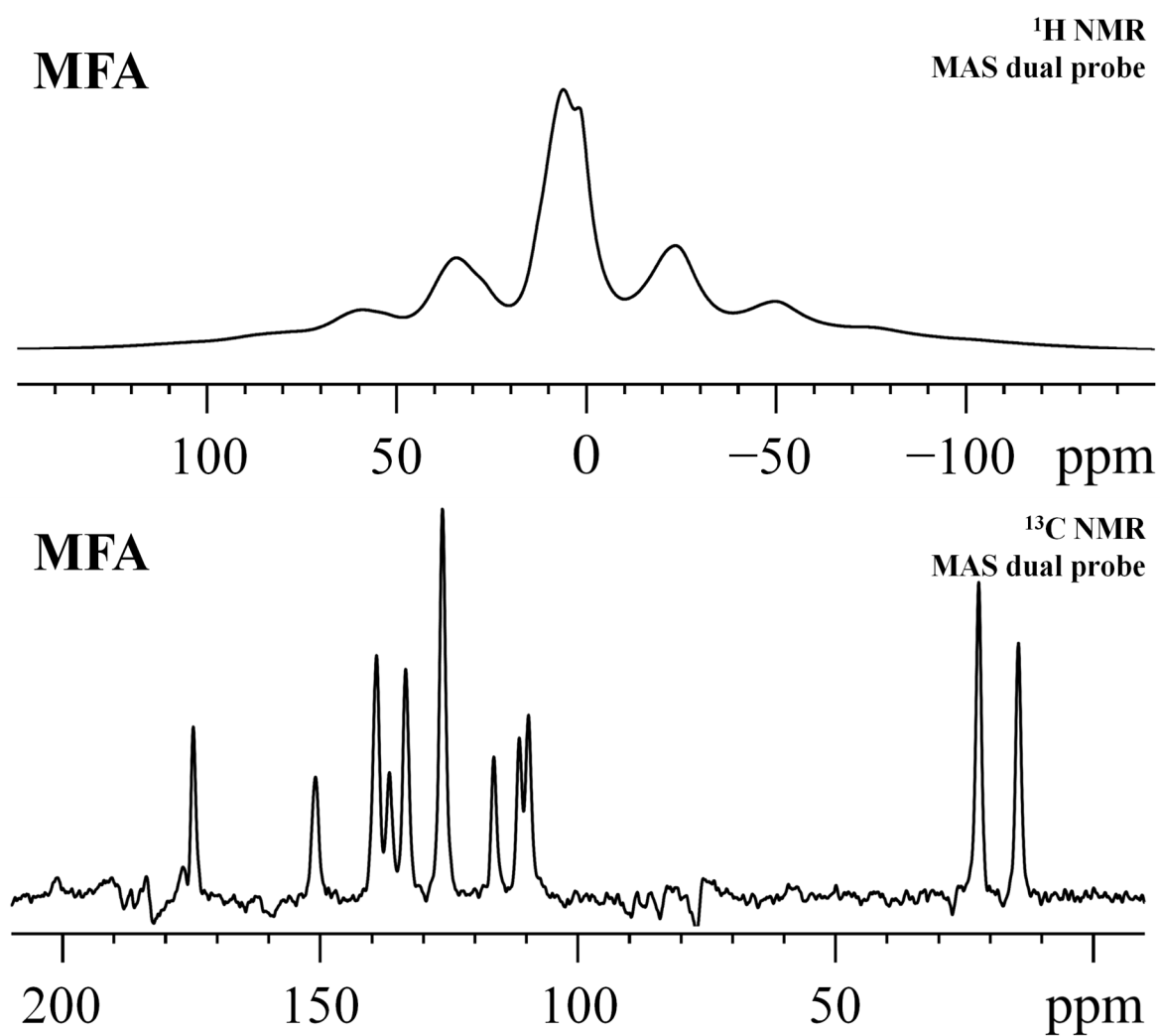


Figure S5. <sup>13</sup>C (top) and <sup>1</sup>H (bottom) NMR MAS spectra of mefenamic acid.