*molecules*

MDPI

*Supplementary Materials*

# Silica Monolith for the Removal of Pollutants from Gas and Aqueous Phases

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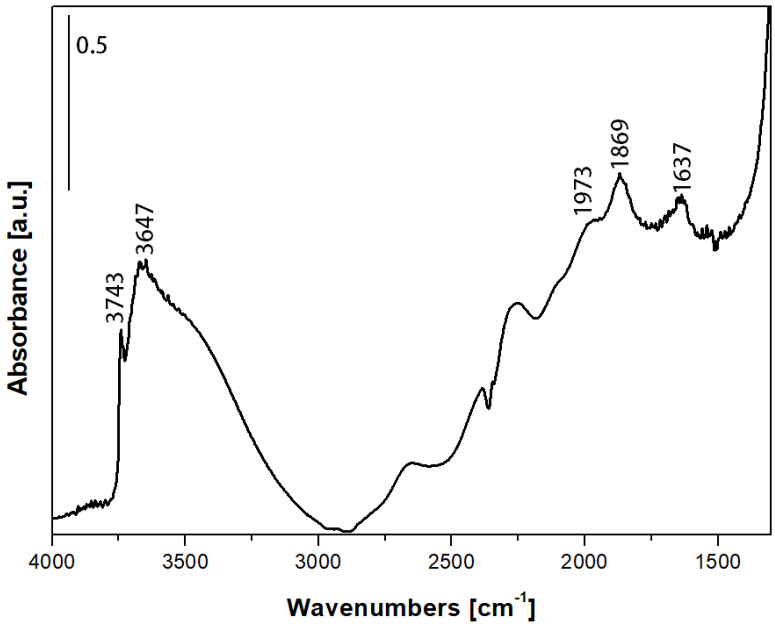
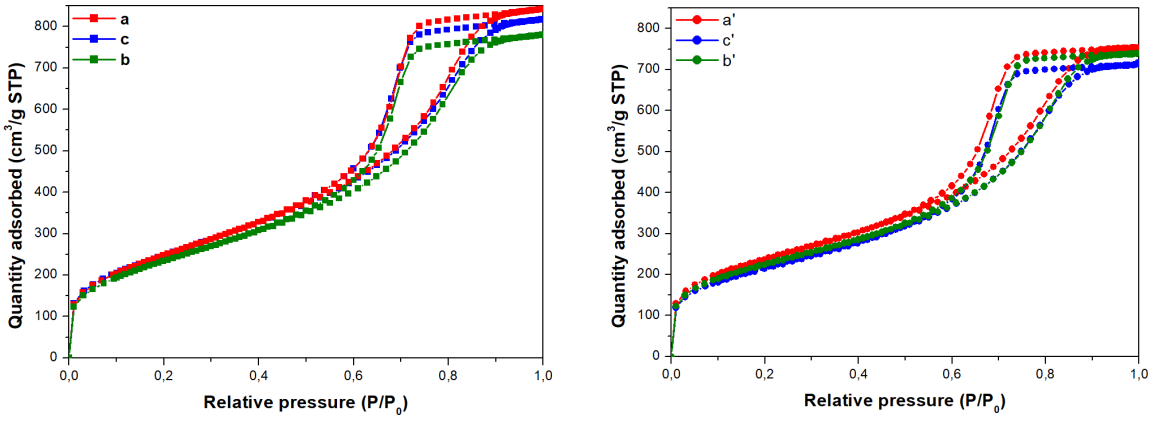
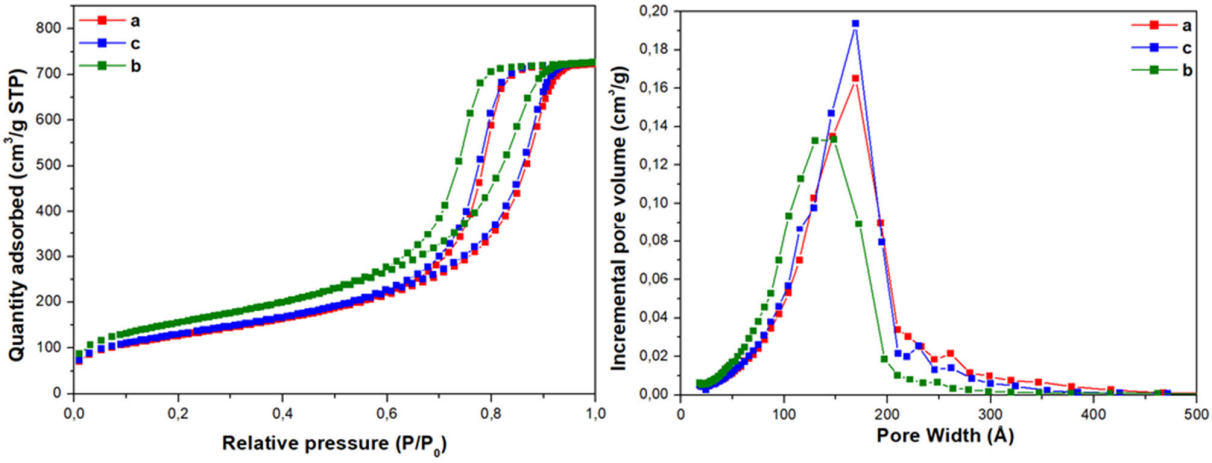



**Figure S1.** FT-IR spectra of self-supported pellets of Mono-ICE calcined sample after treatment in vacuum at beam temperature (b.t., 35 °C) for 30 min.




(**A**) (**B**)

**Figure S2.** Comparison between the first (Frame **A**) and the second repetition (Frame **B**) of $N_2$ adsorption and desorption isotherms of Mono-ICE-A (**a**), Mono-ICE-B (**b**) and Mono-ICE-C (**c**).




(**A**) (**B**)

**Figure S3.** $N_2$ adsorption and desorption isotherms (Frame **A**) and pore size distribution (Frame **B**) of Mono-ICE-A-36h (**a**), Mono-ICE-B-36h (**b**) and Mono-ICE-C-36h (**c**).

**Table S1.** Main Textural Features of MCM-41 Silica.

| Sample | $SSA_{BET}$ [1] [$m^2/g$] | $V_T$ [2] [$cm^3 \cdot g^{-1}$] | $V_{mesop}$ [3] [$cm^3 \cdot g^{-1}$] 30-80 Å | $V_{mesop}$ [3] [$cm^3 \cdot g^{-1}$] 20-100 Å | $V_{mesop}$ [3] [$cm^3 \cdot g^{-1}$] | |
|---|---|---|---|---|---|---|
| | | | | | 20-65 Å | 65-100 Å |
| MCM-41 | 1103 | 1.31 | 0.90 | 0.95 | 0.83 | 0.12 |

[1] Brunauer-Emmet-Teller (BET) specific surface area (SSA); [2] Total pore volume by NLDFT method; [3] Volume of mesopores NLDFT method.

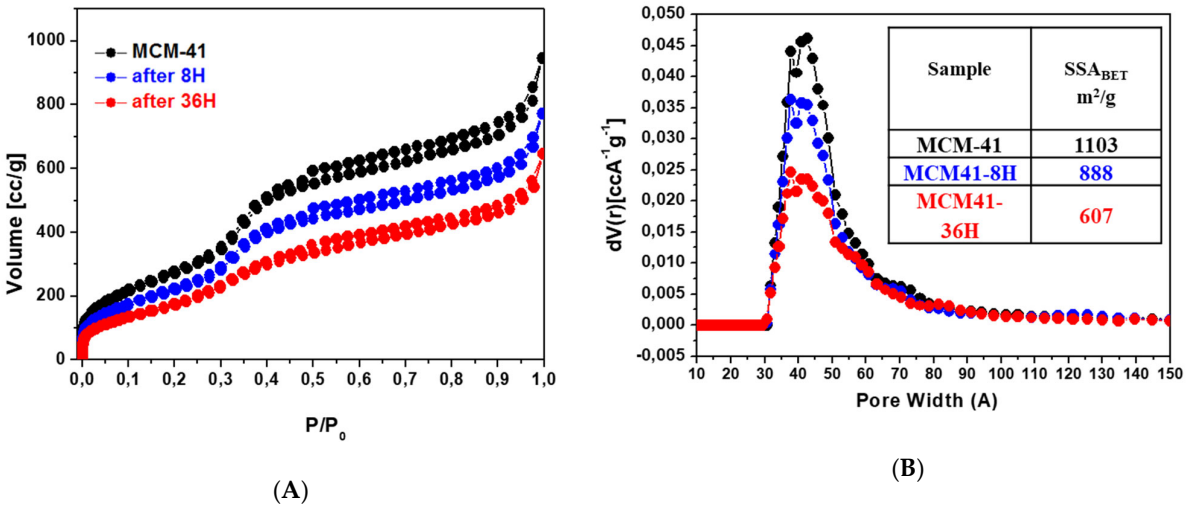



**Figure S4.** $N_2$ adsorption and desorption isotherms (Frame **A**) and pore size distribution (Frame **B**) of MCM-41 - before and after water treatment at 50 °C for 36 h.

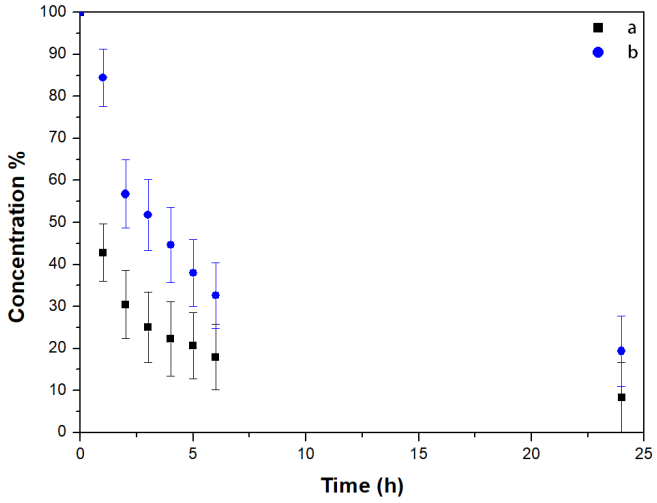



**Figure S5.** Relative concentration (%) over time of $1.5 \times 10^{-2}$ mM Rhodamine B in water solution in the presence of commercial MCM-41 powder, before (a■) and after (b●) water treatment.

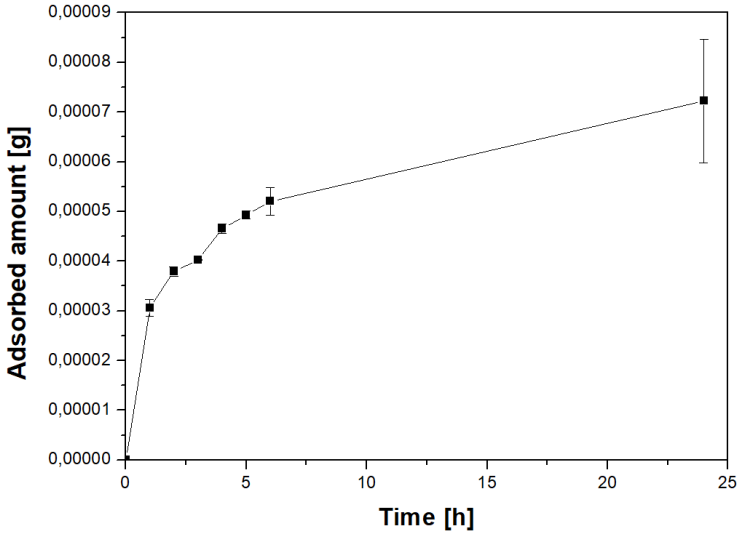



**Figure S6.** Adsorbed amount (g) over time of $1.46 \times 10^{-2}$ mM Rhodamine B in water solution (63.4 mL) in the presence of Mono-ICE (317 mg).

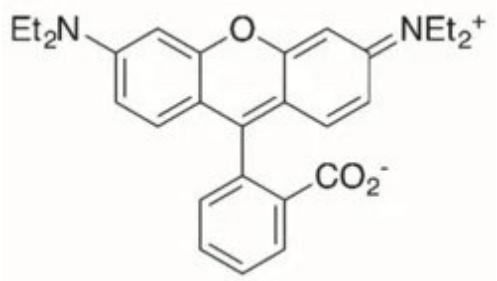



**Figure S7.** Zwitterionic form of Rhodamine B prevailing in water at pH ≥ 4.2