Novel SO_2 Phase-Change Absorbent: Mixture of N, N-Dimethylaniline and Liquid Paraffin

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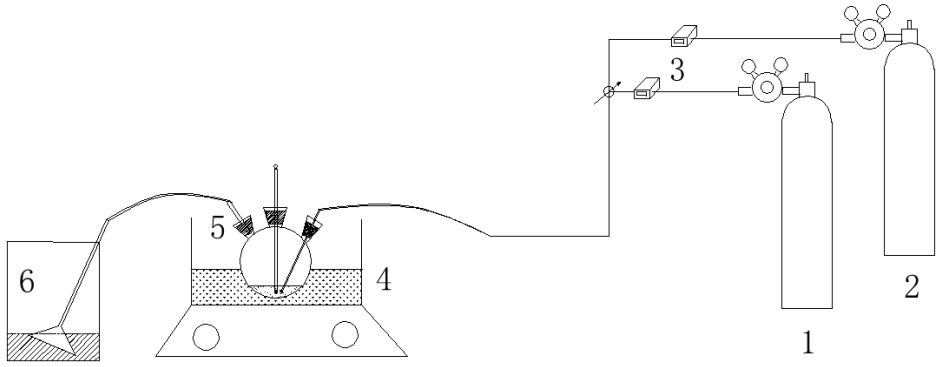

Scheme S1 Schematic diagram of the absorption apparatus (1) SO_2 gas, (2) N_2 gas, (3) gas flowmeter, (4) magnetic stirrer and heater, (5) reactor, (6) tail gas absorption devices

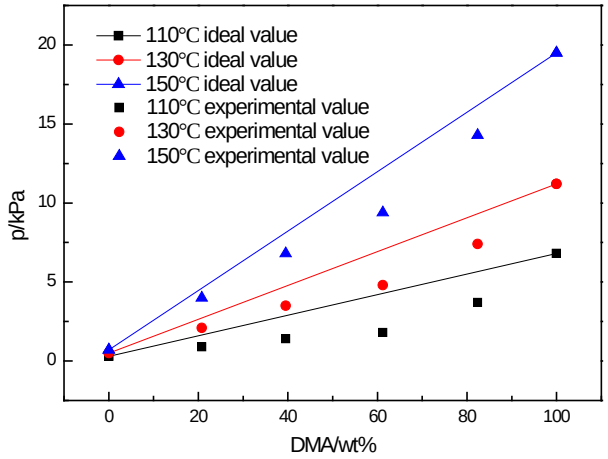

Fig. S1 Vapor pressure/ DMA content (p-x) of SPCA at different temperature (110°C,130°C and 150°C)

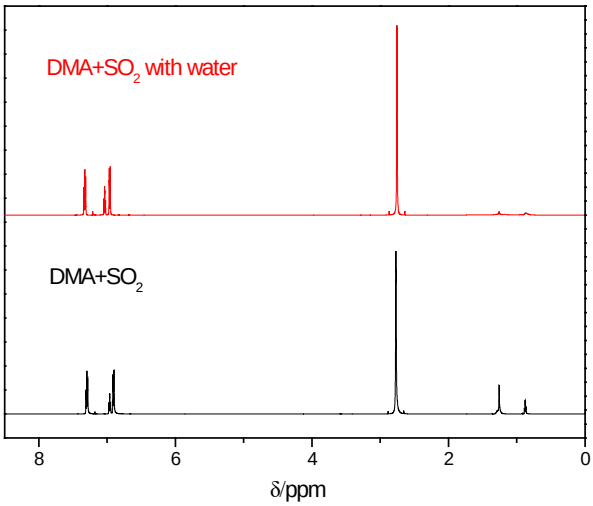

Fig. S2 ^{1}H spectra of the SO_2 absorption product with and without water

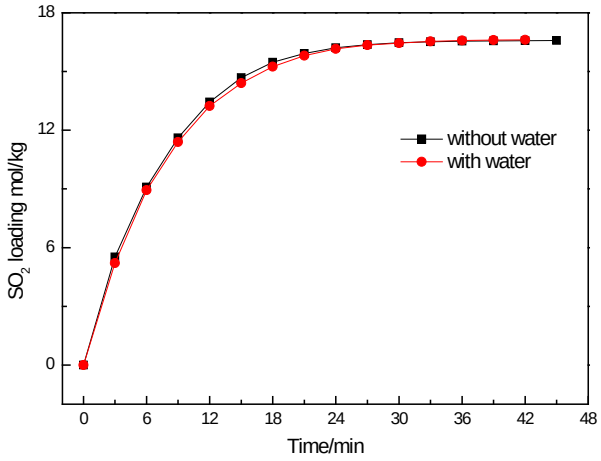

Fig. S3 Total SO_2 loading of SPCA (40% DMA) at 20 ℃ with and without water

Table S1 Dissolving ability of DMA in organic solvents and phase separation phenomenon upon SO_2 loading at 20°C

Solvents	Dissolved	Phase-change phenomenon	Total SO_2 loading (mol SO_2/mol DMA)
Butanol	Yes	No	1.66
Diethylene glycol Dimethyl ether	Yes	No	1.66
N-methyl-pyrrolidone	Yes	No	1.69
Diethyl carbonate	Yes	No	1.69
Propylene carbonate	Yes	No	1.71
Decane	Yes	Liquid-Liquid Phase Change	1.68
Liquid paraffin	Yes	Liquid-Liquid Phase Change	1.69