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Supporting information

Title: Hydrogen sulfide gas capture by organic superbase 1, 8-diazabicyclo-[5.4.0]-undec-7-ene through salt formation: Salt synthesis, characterization and application for CO_2 capture

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Table S1. ^{1}H NMR shifts and signal assignments in spectra of DBU and solid [DBU-H_2S] adduct (DMSO-d^6 as internal standard)

DBU			solid [DBU-H_2S] adduct		
H^n [a]	*n*H	δ, ppm	H^n	*n*H	δ, ppm
DBU 3, 4, 5	6	1.45-1.54	DBU 3, 4	4	1.56-1.57
DBU 10	2	1.65	DBU 5	2	1.63-1.64
DBU 6	2	2.24	DBU 10	2	1.86
DBU 9	2	3.07	DBU 6	2	2.90-2.93
DBU 11, 2	4	3.14-3.16	DBU 9	2	3.17
			DBU 11	2	3.47
			DBU 2	2	3.53-3.55
			-SH/-NH	2	4.49

[a] Numbering of protons =

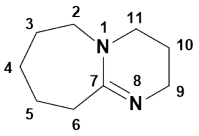

Table S2. ^{13}C NMR shifts and signal assignments in spectra of DBU and solid [DBU-H_2S] adduct (DMSO-d^6 as internal standard)

DBU			solid [DBU-H_2S] adduct		
C^n [a]	Rel. Int.	δ, ppm	C^n	Rel. Int.	δ, ppm
DBU 10	1	22.37	DBU 10	1	19.01
DBU 5	1	25.82	DBU 5	1	23.45
DBU 3	1	28.14	DBU 3	1	26.05
DBU 4	1	29.13	DBU 4	1	28.16
DBU 6	1	36.37	DBU 6	1	30.30
DBU 9	1	43.49	DBU 9	1	36.70
DBU 11	1	47.51	DBU 11	1	47.71
DBU 2	1	51.82	DBU 2	1	52.88
DBU 7	1	159.57	DBU 7	0.5	164.76

[a] Numbering of carbon atoms =

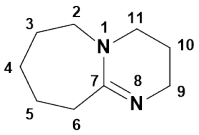

Figure S1 a) ^{1}H-^{13}C COSY NMR and, b) ^{1}H-^{13}C HMBC NMR of DBU (in solvent d^{6} - DMSO)

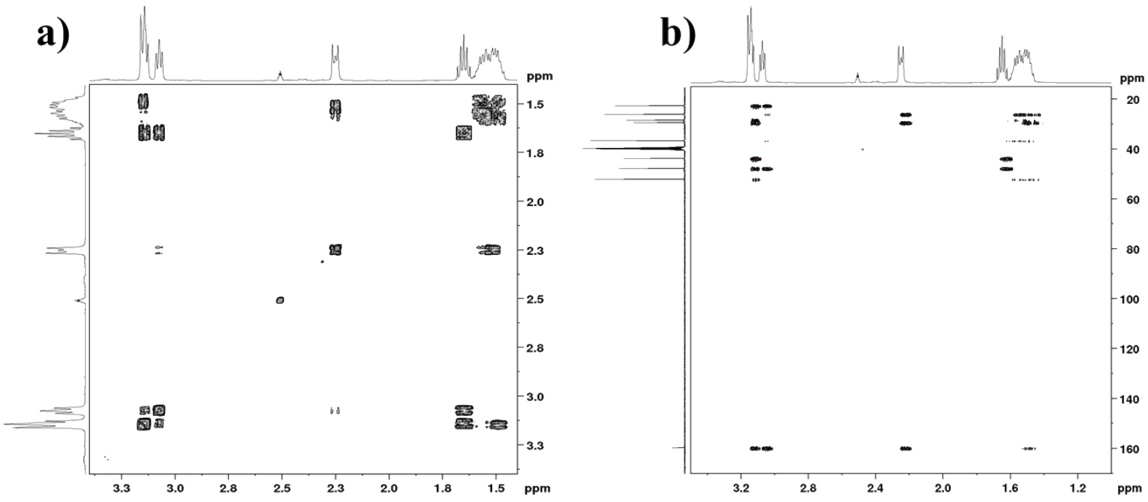

Figure S2 a) ^{1}H-^{13}C COSY NMR and, b) ^{1}H-^{13}C HMBC NMR solid [DBU-H_2S] adduct (in solvent d^{6} - DMSO)

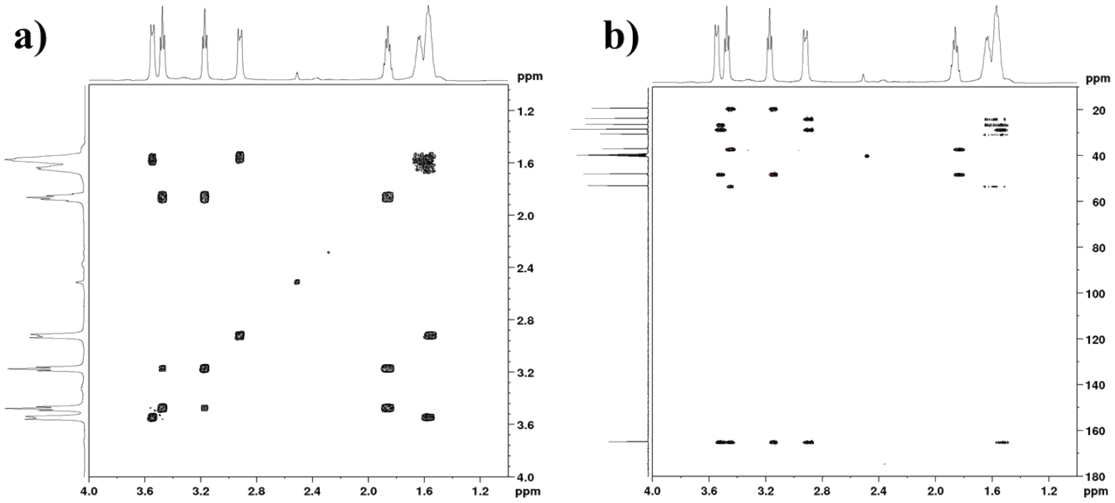

Figure S3 ^{1}H NMR spectra (in $CDCl_3$) of CO_2 treated aqueous solution of [DBUH][SH] salt with different water concentrations, a) DBU, b) [DBUH][SH] salt, with different water concentrations such as c) 5 wt.%, d) 10 wt.%, e) 14 wt.%, f) 18 wt.%, and g) 21 wt.%, CO_2 gas flow rate = 15 ml/min.

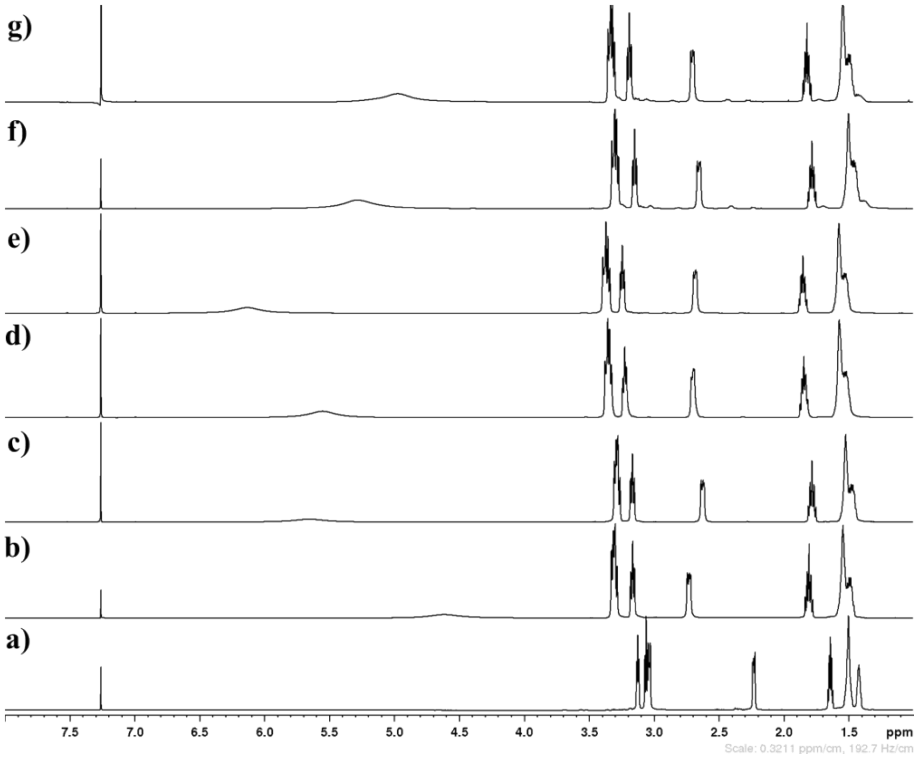

Figure S4 ^{1}H NMR spectra (in $CDCl_3$) of CO_2 treated aqueous solution of [DBUH][SH] salt (14 wt.% H_2O with different gas flow rates a) DBU, b) [DBUH][SH] salt, with different gas flow rates such as c) 5 ml/min, d) 10 ml/min, e) 15 ml/min, f) 20 ml/min, and g) 25 ml/min.