Supporting Information

Economical synthesis of cyclic carbonates from carbon dioxide and halohydrins using K_2CO_3

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Table, Figure and Experimental Section:

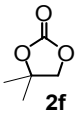
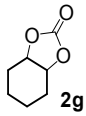
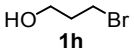
Table S1 Effect of Several Other Solvents

Entry	Solvent	Dielectric const.	Yield (%)
1	Toluene	2.38	6
2	C_2H_5OH	24.5	62
3	Dry DMF	36.7	90
4	DMF	(36.7)	90
4	CH_3CN	37.5	88
5	DMSO	46.7	88
6	H_2O	80.1	32

[a] Reaction conditions: **1a** (5 mmol; 22% is 2-bromo-1-propanol), K_2CO_3 (0.76 g, 5.5 mmol), CO_2 (99.999%, balloon). After solvent and K_2CO_3 were stirred in the presence of CO_2 (1 atm) for 4 h at 30 °C, **1a** was added and reacted for 20 h. [b] Isolated yield.

[c] anhydrous (non-anhydrous and non-deoxygenated).

Table S2 Effect of Cs_2CO_3 as Base for **1f** , **1g** and **1h**[1]

Entry	Halohydrin	Product	Yield (%)
1	 **1f**	 **2f**	41
2	 **1g**	 **2g**	61
3	 **1h**	 **2h**	83

[a] Reaction conditions: **1a** (5 mmol; 22% is 2-bromo-1-propanol), Cs_2CO_3 (0.76 g, 5.5 mmol), CO_2 (99.999%, balloon). After solvent and K_2CO_3 were stirred in the presence of CO_2 (1 atm) for 4 h at 30 °C, **1a** was added and reacted for 20 h. [b] Isolated yield.

Reference

1. M. R. Reithofer, Y. N. Sum and Y. Zhang, *Green Chem.*, **2013**, *15*, 2086−2090.

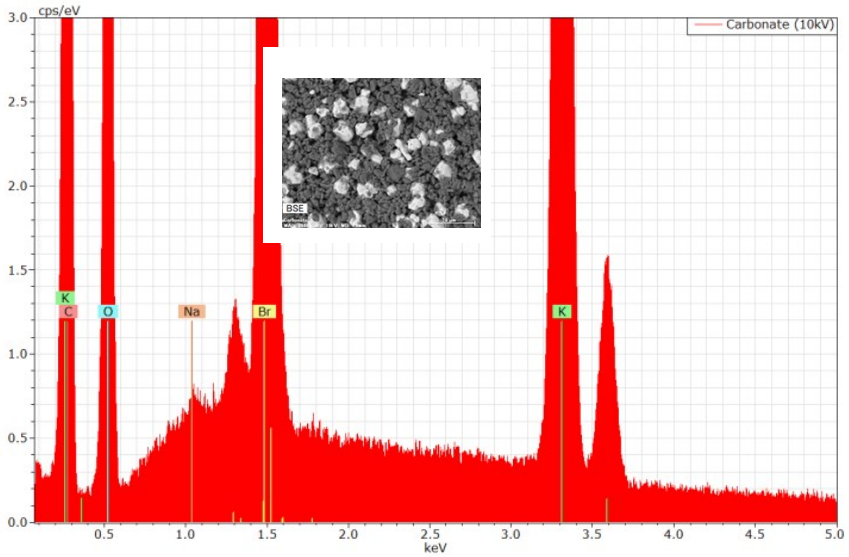


Figure S1. EDX analysis of the precipitate after the reaction of 1-bromo-2-propanol and CO_2 in the presence of K_2CO_3 (Table 1, entry 9).

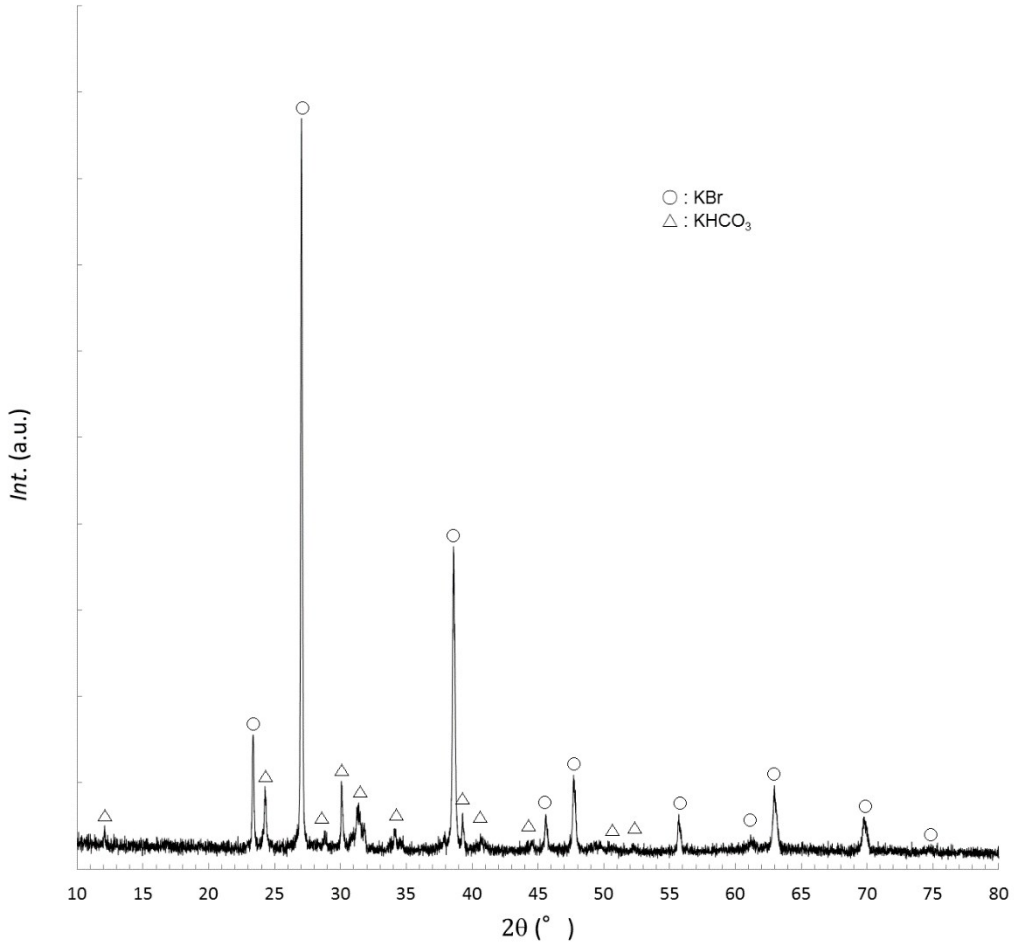
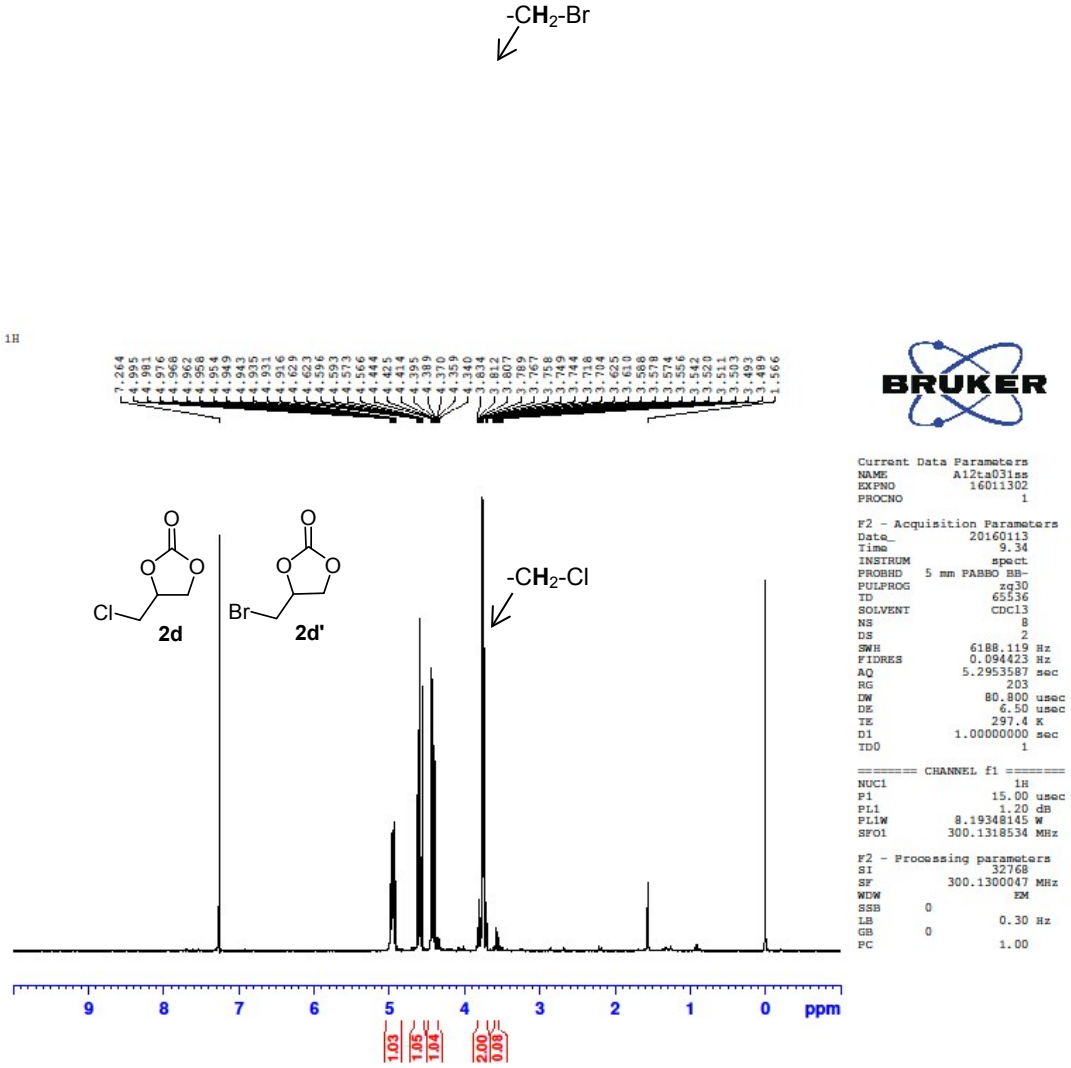
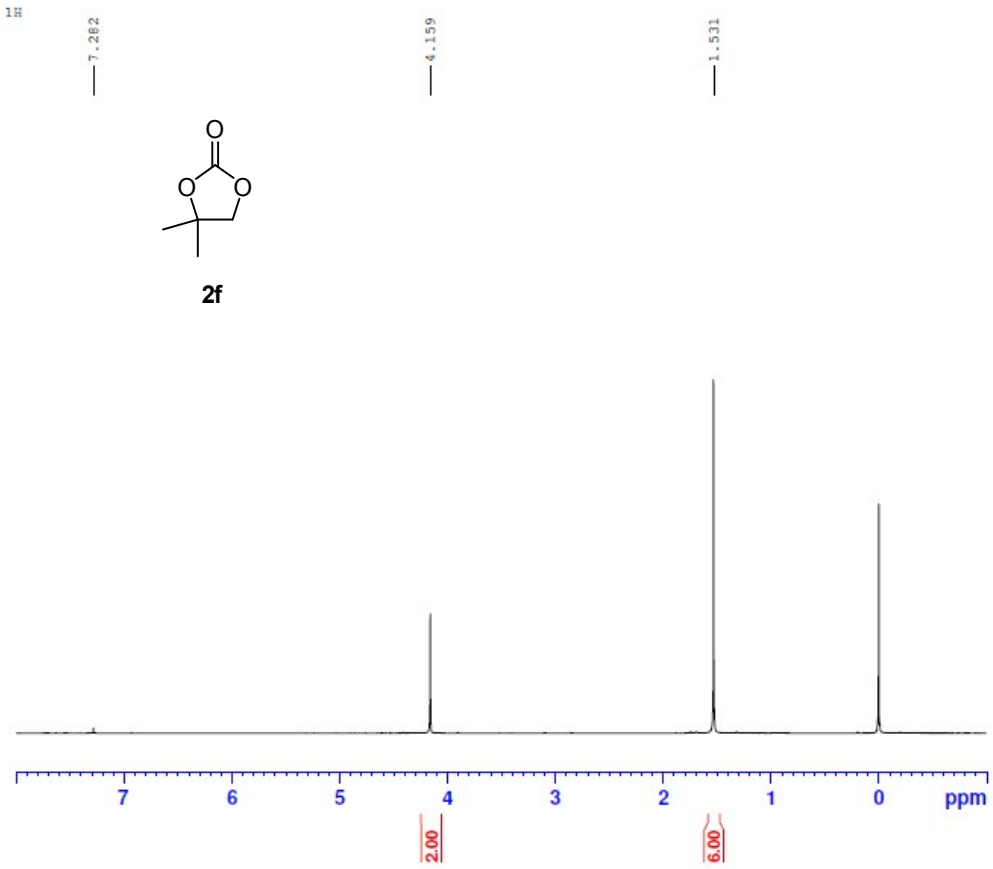


Figure S2. XRD profile of the precipitate after the reaction of 1-bromo2-propanol and CO_2 in the presence of K_2CO_3 (Table 1, entry 9).



^{1}H NMR (300 MHZ, $CDCl_3$): δ 5.00-4.92 (m), 4.63-4.57 (m), 4.44-4.34 (m), 3.83-3.74 (m), 3.72-3.49 (m).



^{1}H NMR (300 MHZ, $CDCl_3$): δ 4.15 (s), 1.53 (s).