Supplementary Material (ESI) for Chemical Communications

Low pressure CO_2 to dimethyl carbonate by the reaction with methanol promoted by acetonitrile hydration

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Electronic Supplementary Information

The activity test was repeated three times by the recycle use of the catalyst. The catalyst was recovered by filtration after the 2 h reaction, and dried at 383 K for 2 h in the atmosphere, and then the catalyst was re-used. The results in the reaction of CH_3OH + CO_2 + acetonitrile are listed in Table S1. The amount of products and BET surface area were almost constant in this stability test. Figure S1 shows the XRD profile before the reaction and after the three-time reaction. Only the peaks assigned to CeO_2 were observed, and the intensity and width of the peaks were not changed. These results demonstrated the stability of the CeO_2 catalyst.

Table S1. Results of the activity test in the reaction of CH_3OH + CO_2 + acetonitrile over the used catalyst.

Times	Amount of products / mmol				BET surface area after each test / m^2g^{-1}
	DMC	Methyl carbamate	Acetamide	Methyl acetate	
1	1.47	0.06	1.72	0.09	72
2	1.45	0.04	1.54	0.10	71
3	1.48	0.05	1.60	0.13	71

Reaction conditions: CeO_2 0.17 g, CH_3OH : Acetonitrile = 100 mmol : 300 mmol, reaction temperature 423 K, reaction time 2 h.

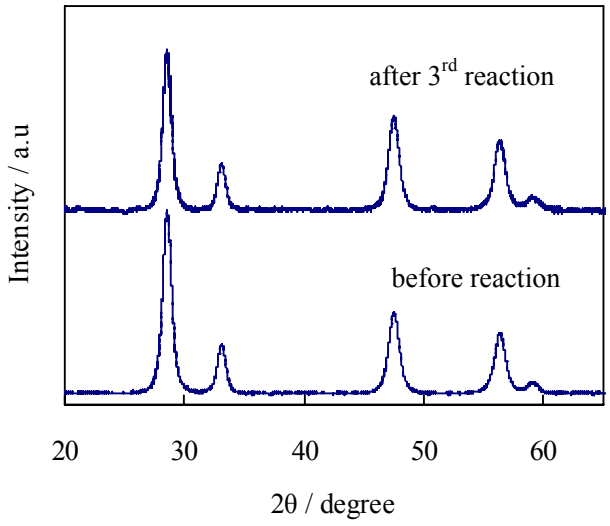

Figure S1. XRD patterns of the CeO_2 catalyst before the reaction and after the 3rd reaction test.