Supporting Information

for

High-speed C–H chlorination of ethylene carbonate using a new photoflow setup

Takayoshi Kasakado, Takahide Fukuyama, Tomohiro Nakagawa, Shinji Taguchi and Ilhyong Ryu

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GC analysis and NMR spectra of the crude reaction mixture for the chlorination of compound 1
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General information
GC analysis was performed on a Shimadzu GC-2014 instrument equipped with an FID detector using a J&W Scientific (Hongkong, China) DB-1 column under the following conditions: initial oven temperature was held at 40 °C for 5 min, the first ramp was 5 °C/min to 250 °C, which was held for 10 min. Yields were determined by using the percentage peak area method with compensation for the relative sensitivities of each component. 1H NMR spectra were recorded with a JEOL JMN-ECS400 (400 MHz) and referenced to the solvent peak at 7.26 ppm. 13C NMR spectra were recorded with a JEOL JMN-ECS400 (100 MHz) and referenced to the solvent peak at 77.0 ppm. Product 2 is a known compound [1] and the dichlorinated product 2' is commercially available from Sigma–Aldrich Co. Inc. These compounds were identified by 1H NMR and 13C NMR analysis and comparison with the reported data.

Reference
1. Wang, W.-M.; Wang, W.-T.; Wang, M.-Y.; Gu, A.-L.; Hu, T.-D.; Zhang, Y.-X.; Wu, Z.-L. Inorg. Chem. 2021, 60, 9122–9131

| retention time (min) | area  | height | concentration (area%) |
|----------------------|-------|--------|-----------------------|
| 23.187               | 3545  | 484    | 3.501                 |
| 23.433               | 6022  | 805    | 5.948                 |
| 25.634               | 91693 | 15698  | 90.552                |

Figure S1: GC analysis data of the crude product mixture from the C–H chlorination reaction of ethylene carbonate (1).
Figure S2: $^1$H NMR spectrum of the crude reaction mixture from the C–H chlorination of ethylene carbonate (1) [1].

Figure S3: $^{13}$C NMR spectrum of the crude reaction mixture from the C–H chlorination of ethylene carbonate (1) [1].