Supplementary information for:

**Efficient conversion of epoxides into carbonates with CO₂ and a single organocatalyst: laboratory and kg-scale experiments**

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**Experimental procedure:** the carbonation of epichlorhydrine is illustrative:

An open glass Schlenk tube is charged with 5 mL (61.8 mmol) epichlorhydrine, 580 mg (6.18 mmol) 2-aminopyridine and a magnetic stir bar. It is placed in a stainless-steel autoclave, then pressurized with carbon dioxide under 10 bar pressure. It is heated under stirring at 60°C (internal temperature) during 16 hrs. After cooling, the carbonate can be purified by filtration through a short pad of silica and eluting with diethyl ether followed by evaporation of the solvent to yield 7.58 g of carbonate (90%).

**4-(chloromethyl)-1,3-dioxolan-2-one 1a:** light-yellow liquid liquid; ¹H NMR (300 MHz, CDCl₃) δ 4.94-5.02 (m, 1H), 4.56 (t, J = 8.4 Hz, 1H), 4.34-4.39 (m, 1H), 3.63-3.82 (m, 2H); ¹³C NMR (75 MHz, CDCl₃) δ 154.6, 74.6, 67.0, 44.2
4-hydroxymethyl-1,3-dioxolan-2-one 1b: pale yellow liquid; 7.73 g obtained (87 %) from 5 mL (75.2 mmol) glycidol and 354 mg (3.8 mmol) 2-aminopyridine, under 5 bar CO₂ at 25°C during 16 hrs; ¹H NMR (300 MHz, CDCl₃) δ 5.04 (1H, brs), 4.78–4.81 (1H, m), 4.46–4.55 (2H, m), 4.01 (1H, dd j= 3.2, 13 Hz), 3.72 (1H, dd j= 3.5, 13 Hz); ¹³C NMR (75 MHz, CDCl₃): 155.2, 75.0, 65.8, 61.6
4-Phenyl-1,3-dioxolan-2-one 1c: pale yellow liquid; 3.30 g obtained (46 %) from 5 mL (43.7 mmol) glycidol and 410 mg (4.4 mmol) 2-aminopyridine, under 20 bar CO₂ at 75°C during 16 hrs; ¹H NMR (300 MHz, CDCl₃): 7.42−7.37(m, 2H), 7.37−7.30(m, 3H), 5.70(t, 1H, J=7.9 Hz), 4.82(t, 1H, J=8.4 Hz), 4.37(t, 1H J=8.4 Hz); ¹³C NMR (75 MHz, CDCl₃): 155.0, 135.9, 129.7, 129.2, 126.0, 76.8, 71.2
4-(Phenoxymethyl)-1,3-dioxolan-2-one \textbf{1d}: pale brown solid; 6.84 g obtained (96 %) from 5 mL (36.6 mmol) phenyl glycidyl ether and 345 mg (3.7 mmol) 2-aminopyridine, under 20 bar CO$_2$ at 85°C during 16 hrs; $^1$H NMR (300 MHz, CDCl$_3$): 7.36−7.22(m, 2H), 7.06−6.92(m, 1H), 6.91−6.85(m, 2H), 5.06−4.95(m, 1H), 4.65−4.56(m, 1H), 4.55−4.46(m, 1H), 4.22(dd, $J$ = 10.5, 4.0Hz, 1H), 4.12 (dd, $J$ = 10.5, 3.5Hz, 1H); $^{13}$C NMR (75 MHz, CDCl$_3$): 157.8, 155.0, 129.7, 122.0, 114.6, 74.4, 66.9, 66.3; HRMS: 194.0581
4-(allyloxymethyl)-1,3-dioxolan-2-one: Colourless liquid; 6.72 g obtained (100 %) from 5 mL (42.5 mmol) glycidol and mg (mmol) 2-aminopyridine, under 20 bar CO₂ at 75°C during 16 hrs; °H NMR (300 MHz, CDCl₃) δ 5.71-5.83 (m, 1H), 5.13-5.21 (m, 2H), 4.71-4.81 (m, 1H), 4.43 (t, J = 8.4 MHz, 1H), 4.28-4.32 (m, 1H), 3.92-3.97 (m, 2H), 3.49-3.64 (m, 2H); °C NMR (75 MHz, CDCl₃) δ 154.9, 133.6, 117.8, 75.0, 72.5, 68.8, 66.2
4,4'-oxybis(methylene)bis(1,3-dioxolan-2-one): Colourless liquid; 7.68 g obtained (82 %) from 5 mL (43 mmol) diglycidyl ether and 405 mg (4.3 mmol) 2-aminopyridine, under 20 bar CO₂ at 85°C during 16 hrs; \(^1\)H NMR (300 MHz, CDCl₃) δ 4.81-4.88 (m, 2H), 4.49-4.53 (m, 2H), 4.30-4.41 (m, 2H), 3.73-3.87 (m, 4H); \(^1^3\)C NMR (75 MHz, CDCl₃) δ 154.8, 133.5, 117.6, 75.0, 72.4, 68.7, 66.2
4,4’-(butane-1,4-diylbis(oxy))bis(methylene)bis(1,3-dioxolan-2-one): Colourless liquid; 7.68 g obtained (82 %) from 5 mL (43 mmol) diglycidyl ether and 405 mg (4.3 mmol) 2-aminopyridine, under 20 bar CO₂ at 85°C during 16 hrs