ESI 1 X-RAY FLUORESCENCE OF BA 110 (METAL OXIDES)

Table S1: X-Ray Fluorescence of Ba 110 (Metal Oxides)

Analyte	Mass %
KCl	41.40
SiO_2	32.01
K_2O	11.21
CaO	7.31
MgO	2.33
Al_2O_3	2.31
Fe_2O_3	1.63
P_2O_5	1.24
ZrO_2	0.56
Total	**100**

ESI 2 ^{13}C NMR OF ETHYLENE CARBONATE AND PROPYLENE CARBONATE

The time online analysis using ^{13}C NMR (fig. 11 and 13) was carried out for both syntheses of EC and PC from 0 to 10 h. From the analysis it was found that the following δ ppm belongs to the following compounds. Ethylene glycol ^{13}C NMR (CD_3OD, 125MHz) δ 64.4 ($-CH_2-OH$); Ethylene carbonate ^{13}C NMR (CD_3OD, 125MHz) δ 158.1(C=O, carboxy), 66.7($-CH_2-O-$); 2-hyoxyethyl carbamate ^{13}C NMR (CD_3OD, 125MHz) δ 156.9 (C=O, amides) , 65.9 ($-CH_2-O-$), 59.7 ($-CH_2-OH$); oxazolidin-2-one ^{13}C NMR (CD_3OD, 125MHz) δ 162.7 (C=O, amides), 66.4 ($-CH_2-O-$), 43.4 ($-CH_2-N<$); 3-(2-hydroxyethyl) oxazolidin-2-one ^{13}C NMR (CD_3OD, 125MHz) δ 160.1 (C=O, amides), 65.5 ($-CH_2-O-$), 61.0 ($-CH_2-OH$), 55.8 ($-CH_2-N<$), 46.9 ($-CH_2-N<$); Urea ^{13}C NMR (CD_3OD, 125MHz) δ 163.9 (C=O, amides); propylene glycol ^{13}C NMR (CD_3OD, 125MHz) δ 69.3 ($-CH_2-OH$), 68.6 (>CH-OH), 19.9 (CH3-CH<, C primary); propylene carbonate ^{13}C NMR (CD_3OD, 125MHz) δ 157.4 (C=O, carboxy), 75.7 (>CH-O-), 72.3 ($-CH_2-O-$), 19.6 (CH3-CH<, C primary); 2-hydroxypropyl carbamate ^{13}C NMR (CD_3OD, 125MHz) δ 156.9 (C=O, amides), 70.7 ($-CH_2-O-$), 66.4 (-CH-OH), 30.3 (CH3-CH<, C primary); 4-methyloxazolidin-2-one ^{13}C NMR (CD_3OD, 125MHz) δ 159.0 (C=O, amides), 73.7 (>CH-N<), 66.9 ($-CH_2-O-$), 21.1 ($CH_3-CH<$, C primary); 3-methyloxazolidin-2-one ^{13}C NMR (CD_3OD, 125MHz) δ 158.9 (C=O, amides), 61.8 ($-CH_2-O-$), 46.8 (-CH2-N<), 30.8 (CH3-N<). Fig. 12 and 14 illustrates the compound and their respective ^{13}C NMR labeling of δ ppm.

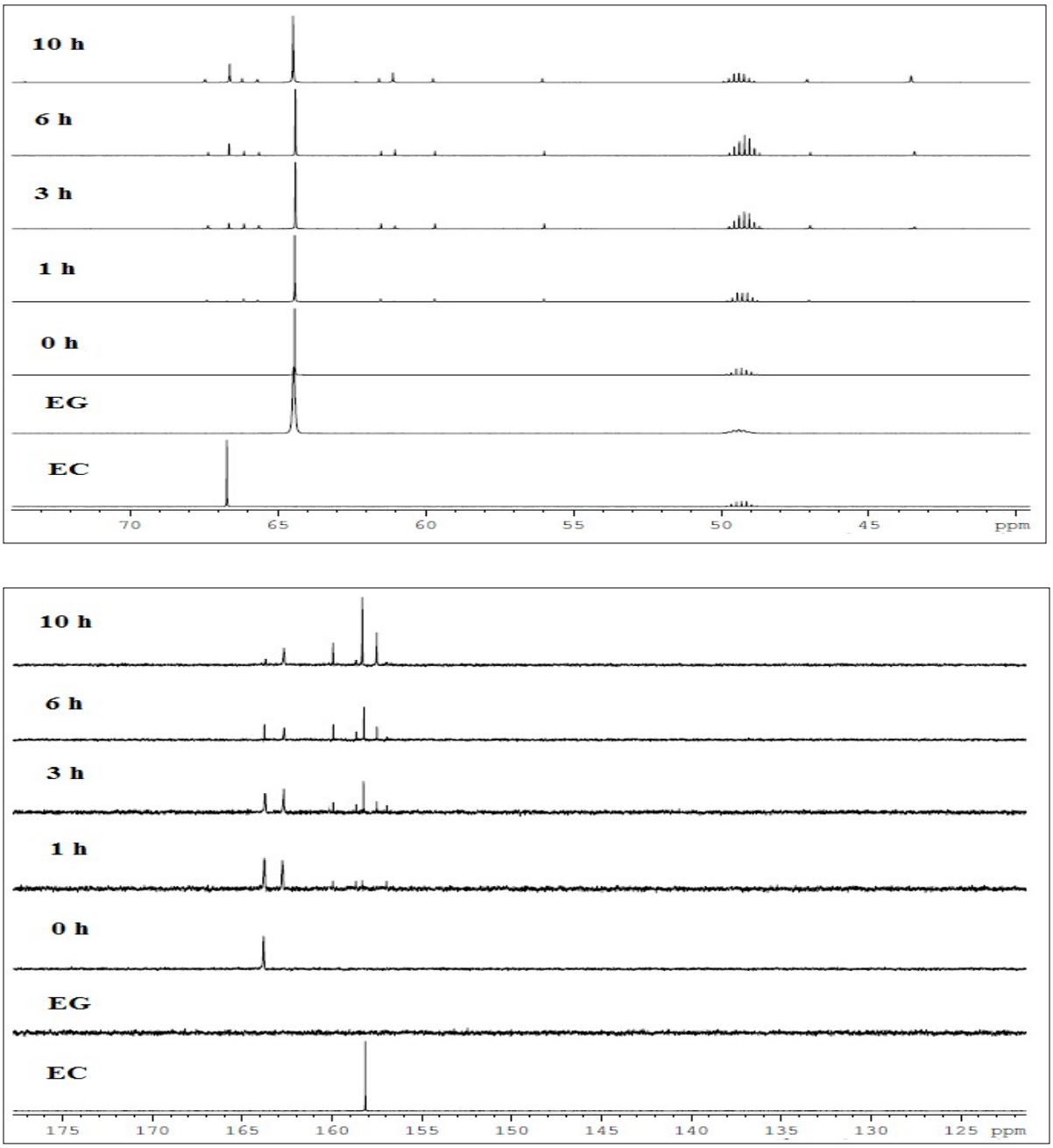
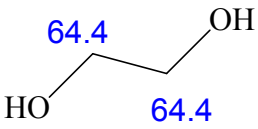
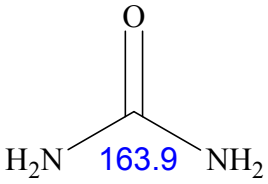


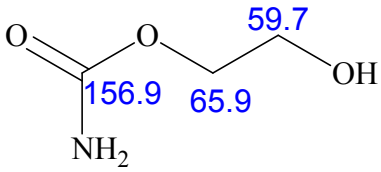
Fig. S1: ^{13}C NMR Overlay of Time Online Analysis of Ethylene Carbonate Synthesis using Ethylene Glycol and Urea.



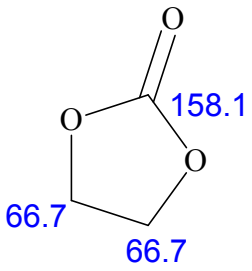
ethane-1,2-diol



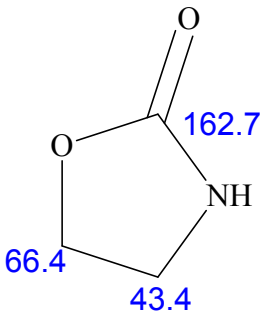
urea



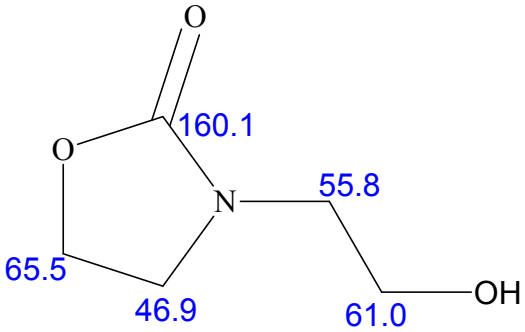
2-hydroxyethyl carbamate



1,3-dioxolan-2-one



oxazolidin-2-one



3-(2-hydroxyethyl)oxazolidin-2-one

Fig. S2: ^{13}C NMR of Reactants, Intermediate and Products Labelled in ppm for Ethylene Carbonate Synthesis.

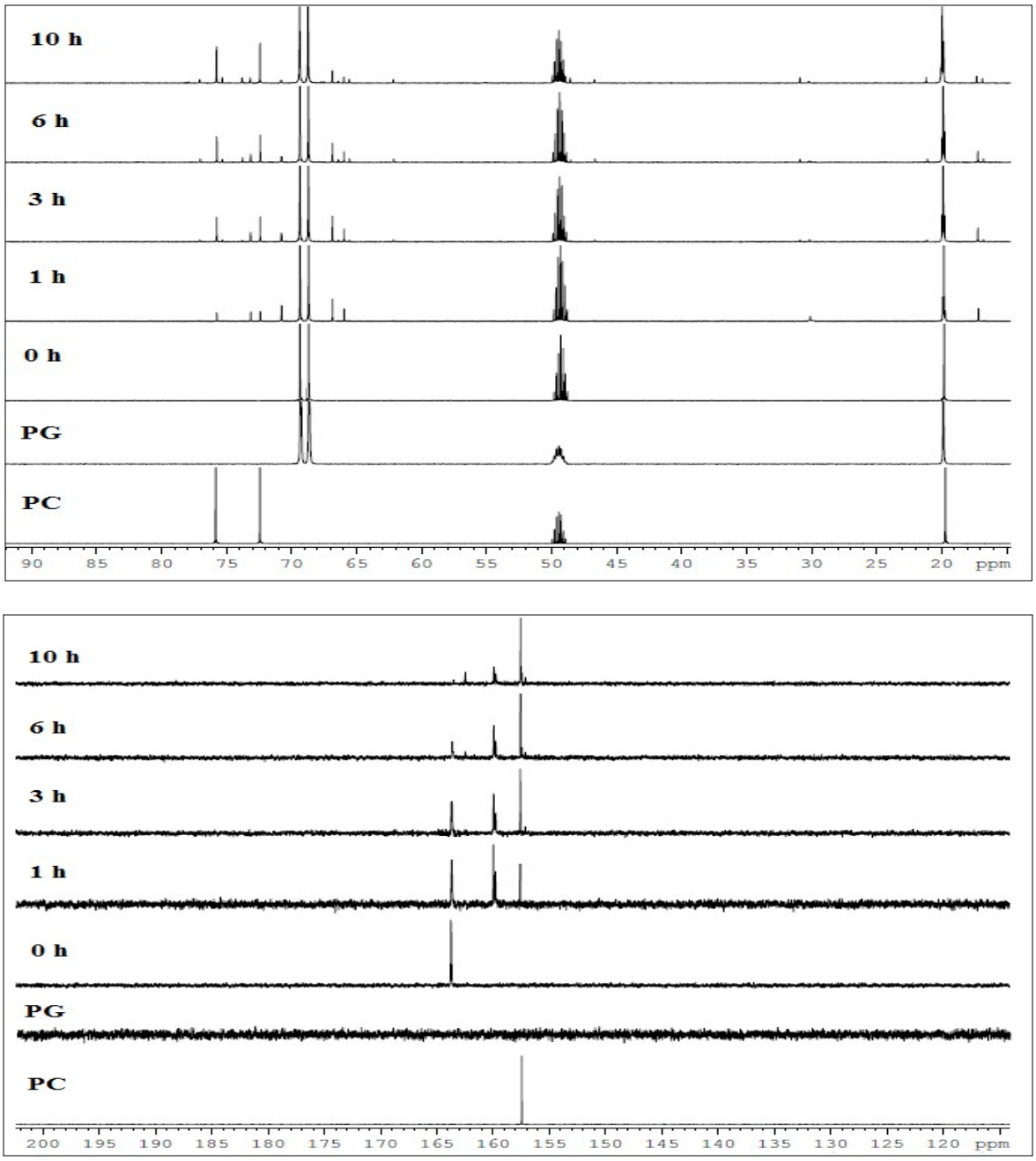
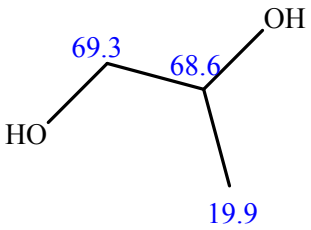
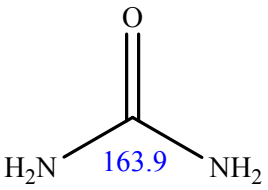


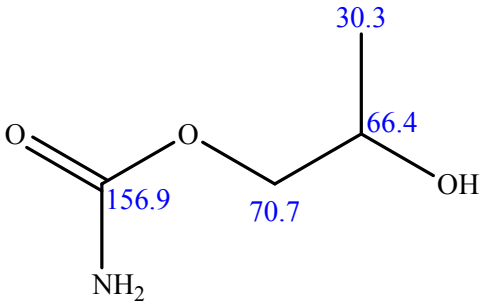
Fig. S3: ^{13}C NMR Overlay of Time Online Analysis of Propylene Carbonate Synthesis using Propylene Glycol and Urea.



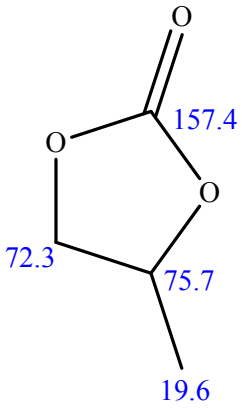
propane-1,2-diol



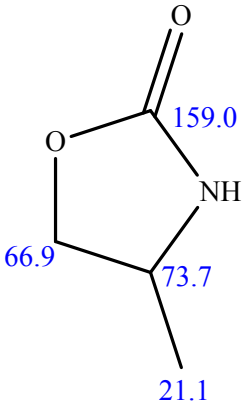
urea



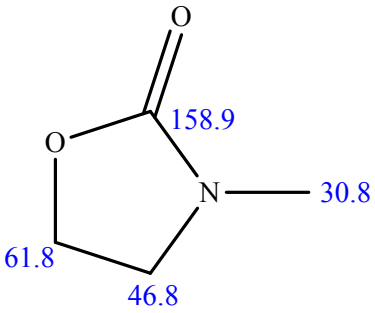
2-hydroxypropyl carbamate



4-methyl-1,3-dioxolan-2-one



4-methyloxazolidin-2-one



3-methyloxazolidin-2-one

Figure S4: ^{13}C NMR of Reactants, Intermediate and Products Labelled in ppm for Propylene Carbonate Synthesis.