

Supporting information

Title: Efficient and catalyst free synthesis of acrylic plastic precursors: methyl propionate and methyl methacrylate synthesis through reversible CO₂ capture

Santosh Khokarale*, Jyri-Pekka Mikkola

S1: ¹H NMR for the synthesis of [DBUH][MeCO₃] and MP in DMSO

S2: ¹³C NMR for the synthesis of [DBUH][MeCO₃] in MeOH

S3: ¹H NMR for the synthesis of [DBUH][MeCO₃] and MMA in DMSO

S4: Calibration curves for MP and MMA

S5: ¹H NMR for recovery of alcoholic solution of methyl propionate

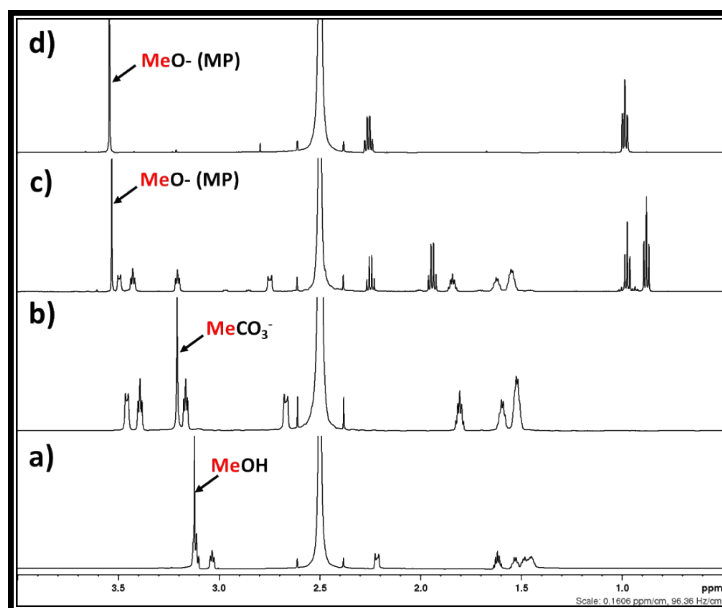
S6: ¹H NMR for recovery of alcoholic solution of methyl methacrylate

S7: FT-IR analysis of recovered alcoholic solution of MP and MMA

S8: ¹³C NMR for the recovery of DBU from [DBUH][propionate]

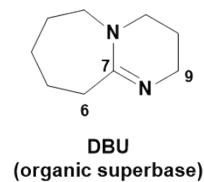
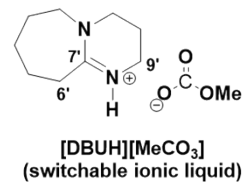
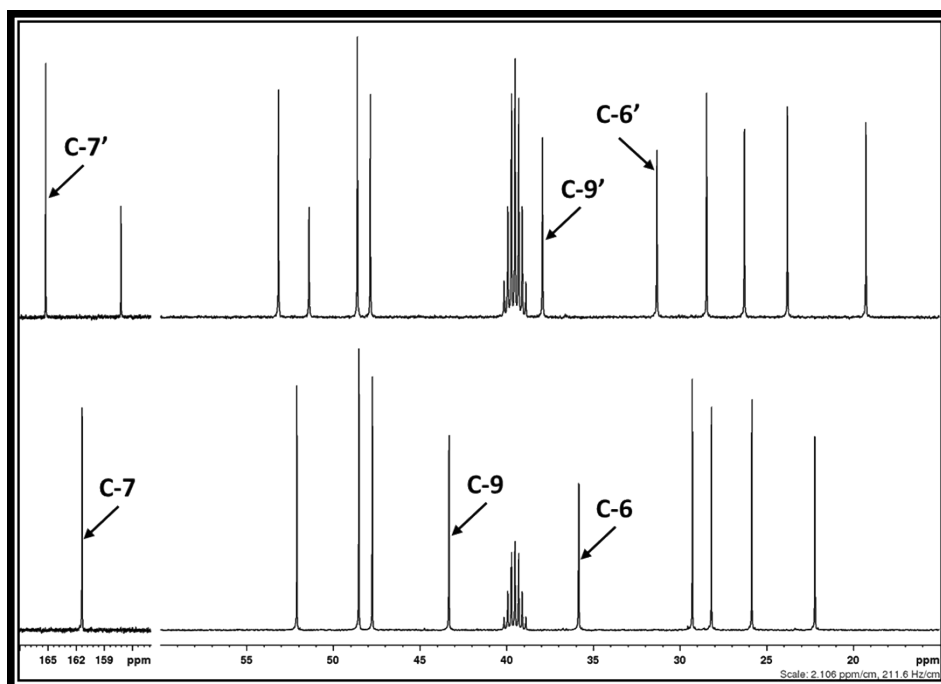
S9: ¹³C NMR for the recovery of DBU from [DBUH][methacrylate]

S1: ^1H NMR for the synthesis of $[\text{DBUH}][\text{MeCO}_3]$ and MP in DMSO

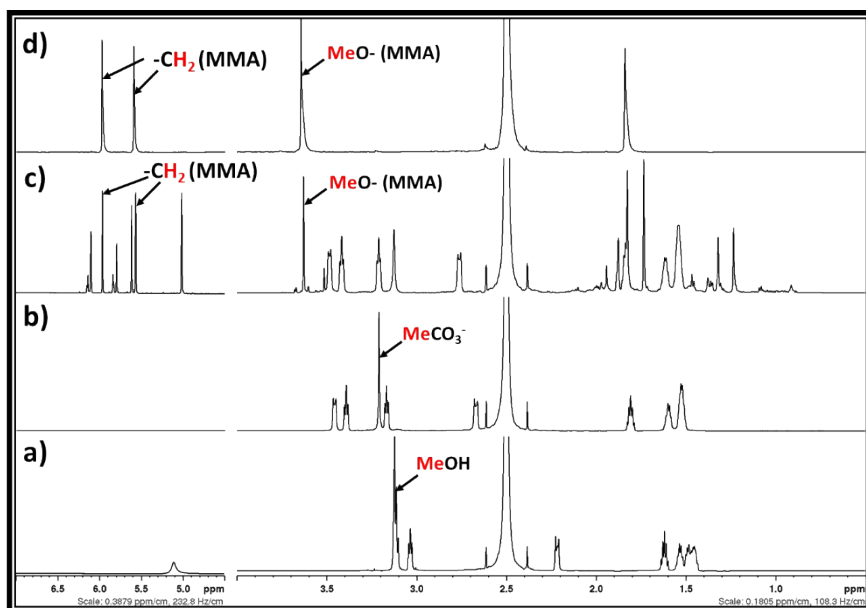


a) DBU and methanol, b) $[\text{DBUH}][\text{MeCO}_3]$, c) MP and $[\text{DBUH}][\text{propionate}]$, and d) commercially available MP in DMSO

S2: ^{13}C NMR for the synthesis of $[\text{DBUH}][\text{MeCO}_3]$ in MeOH

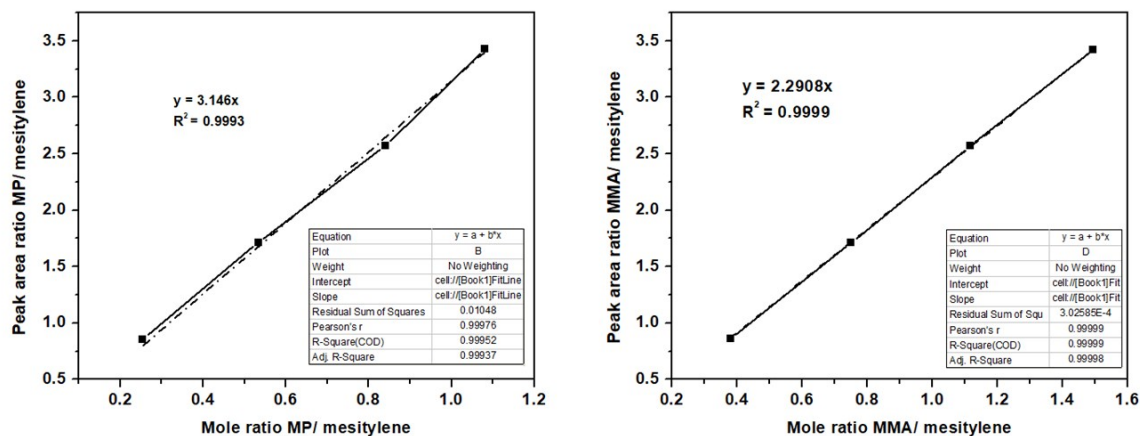


S3: ^1H NMR for the synthesis of $[\text{DBUH}][\text{MeCO}_3]$ and MMA in DMSO

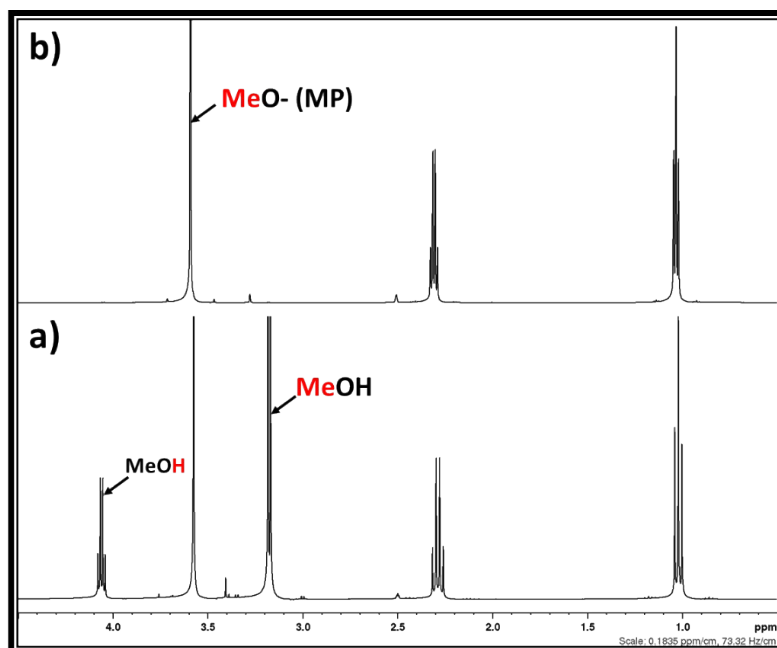


a) DBU and methanol, b) $[\text{DBUH}][\text{MeCO}_3]$, c) MP and $[\text{DBUH}][\text{methacrylate}]$, and d) commercially available MMA in DMSO

S4: Calibration curves for MP and MMA

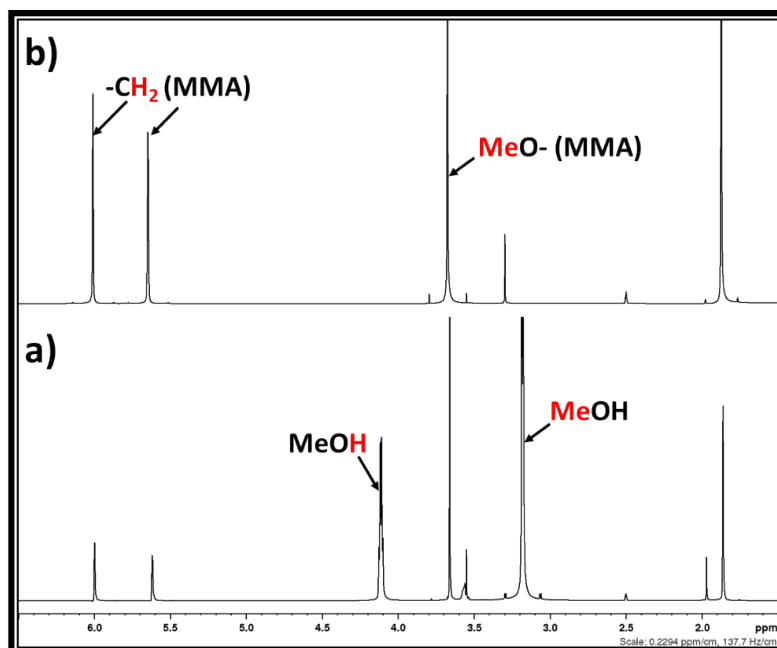


S5: ^1H NMR for recovery of alcoholic solution of methyl propionate



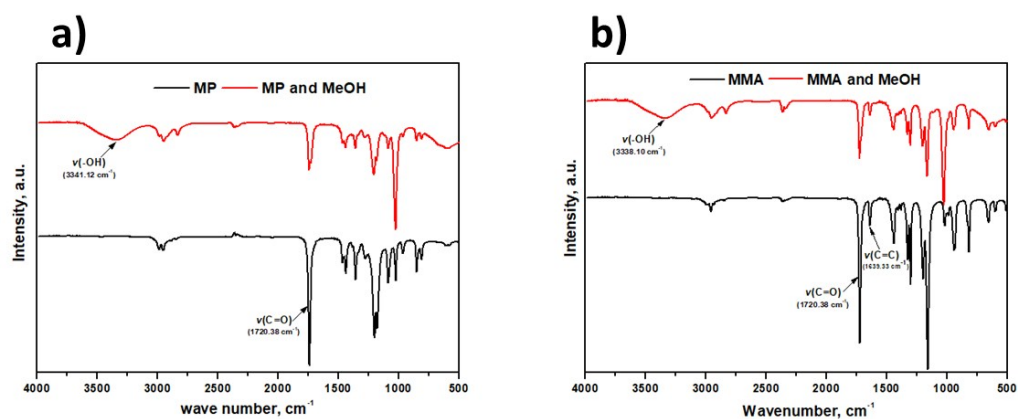
a) Recovered alcoholic solution of MP , and b) commercially available MP

S6: ^1H NMR for recovery of alcoholic solution of methyl methacrylate

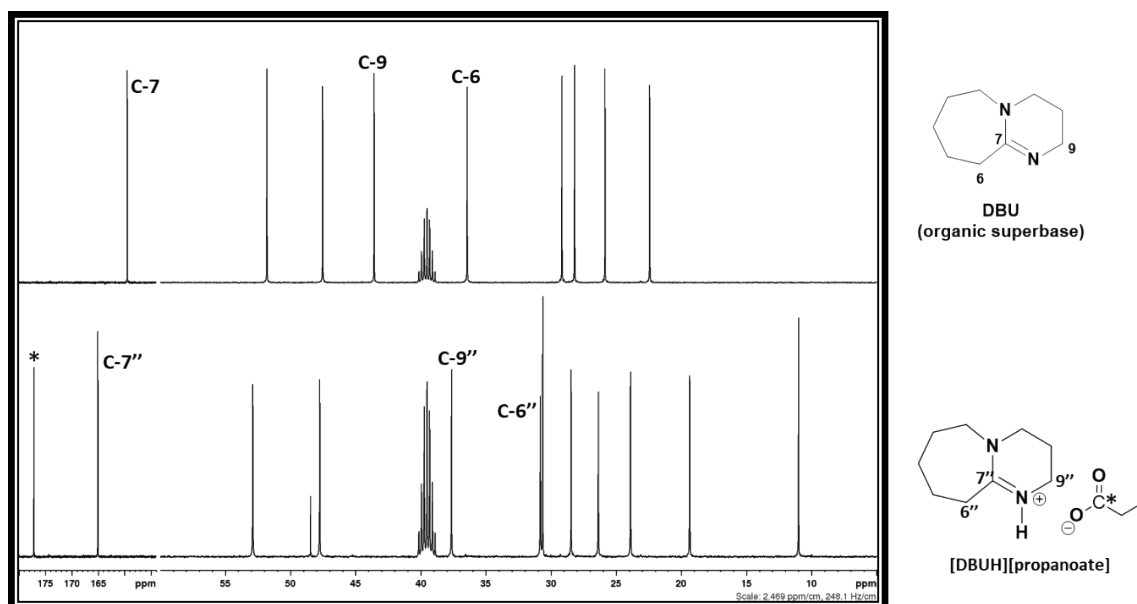


a) Recovered alcoholic solution of MMA , and b) commercially available MMA

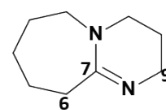
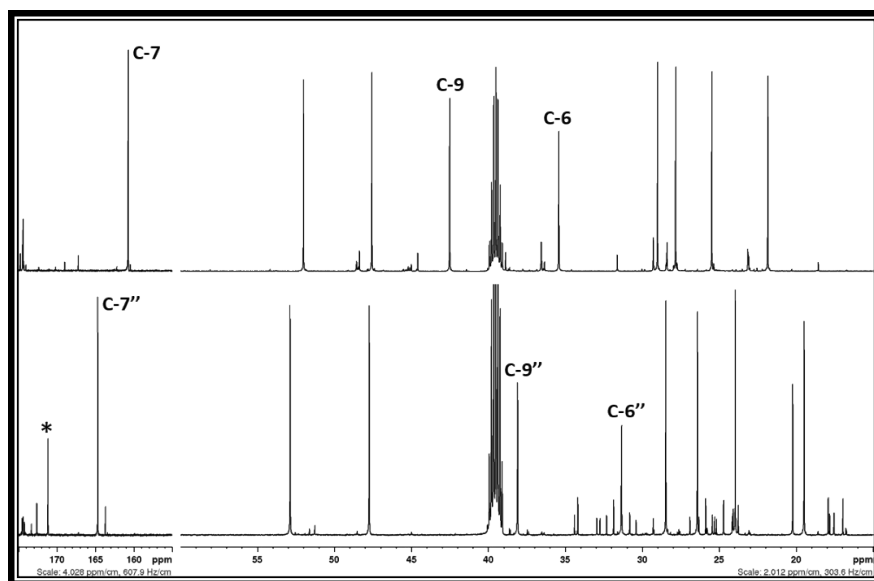
S7: FT-IR analysis of recovered alcoholic solution of a) MP, and b) MMA



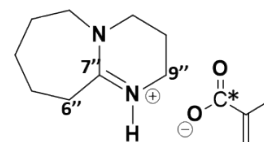
S8: ^{13}C NMR for the recovery of DBU from [DBUH][propionate]



S9: ^{13}C NMR for the recovery of DBU from [DBUH][methacrylate]



DBU
(organic superbase)



[DBUH] [methacrylate]